Migration and Movements of Pacific Salmon, Atlantic Salmon, and Steelhead Trout - A Bibliography 1900-1982

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Canadian Technical Report of
Fisheries and Aquatic Sciences No. 1413

October 1985

MIGRATION AND MOVEMENTS OF PACIFIC SALMON, ATLANTIC SALMON, AND STEELHEAD TROUT - A BIBLIOGRAPHY 1900-1982

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ABSTRACT

Shepard, C., G. Miller, and C. Groot. 1985. Migration and movements of Pacific salmon, Atlantic salmon, and steelhead trout - a bibliography 1900 - 1982. Can. Tech. Rep. Fish. Aquat. Sci. 1413: 450 p.

Indexed list of citations relating to physiological, behavioural, and ecological aspects of migration and movements of Pacific salmon (genus *Oncorhynchus*), Atlantic salmon (*Salmo salar*), and Steelhead trout (*Salmo gairdneri*) from the beginning of 1900 to the end of 1982.

RÉSUMÉ

Shepard, C., G. Miller, and C. Groot. 1985. Migration and movements of Pacific salmon, Atlantic salmon, and steelhead trout - a bibliography 1900 - 1982. Can. Tech. Rep. Fish. Aquat. Sci. 1413: 450 p.

On présente dans ce rapport une liste indexée de citations ayant trait aux aspects écologique, comportemental et physiologique de la migration et des déplacements de saumons du Pacifique (genre *Oncorhynchus*), de saumons de l'Atlantique (*Salmo salar*) et de truites arc-en-ciel (*Salmo gairdneri*) de début des années 1900 à la fin de 1982.

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INTRODUCTION

This bibliography comprises a significant part of the available literature on physiological, behavioural, and ecological aspects of migration and movements of Pacific salmon (genus Oncorhynchus), Atlantic salmon (Salmo salar), and steelhead trout (Salmo gairdneri) from the beginning of 1900 to the end of 1982. It covers material published in primary journals and also numerous papers from technical series and from studies printed as theses. The coverage is most comprehensive for literature dealing with Pacific salmon along the west coast of North America.

The reference material was obtained from computer searches of data bases, including Biosis, Zoological Record, and Dissertation Abstracts International, and from manual searches of fisheries journals and technical series, published bibliographies, abstracting series and reference sections of appropriate papers.

The majority of papers included in this bibliography were examined and annotated with keywords. The few cases where only the title or an abstract was available as information of content, are indicated by a note following the citation.

Each reference was examined with respect to 11 different categories:

(1) Species. Each of the salmon species dealt with in the paper was identified.

(2) Life stage. The stages of development for each species were described.

(3) Geographic. The geographic area in which the reported study occurred was noted.

(4) Habitat. The type of environment the fish inhabited was recorded.

(5) Migration events. The differing processes and events of migration were described.

(6) Migration parameters. The physical aspects of migration are detailed (i.e. route, pattern, speed).

(7) Migration mechanism. The underlying processes of migratory behaviour are noted.

(8) Migration influences. The factors affecting migration are listed.

(9) Anatomical systems. The physiological systems involved in migration are outlined.

(10) Discipline. The disciplinary approach used in the reported study are described.

(11) Methods and techniques. The different methods and techniques used in the study are detailed.

Keywords were assigned to each reference from a list of terms compiled for each category. An outline of the categories and the keywords follows.

In the annotation, the main themes are separated from the modifier by a dash. Slashes are used to separate several themes from one another. Modifiers are strung together with commas.

The bibliography consists of a list of references followed by a series of indexes. The references are arranged alphabetically by author or authors and then by date. Each citation is assigned a sequential number by which it is identified in the indices.

The indices have been colour keyed for easy use. The author index can be found on the green pages. The species/life stage index is pink. The remaining indices, geographic, habitat, migration events, migration parameter, migration mechanisms, migration influences, anatomical systems, discipline and methods and techniques are found in the yellow section.

Several indices can be used simultaneously, both in searches of the bibliography or of the computerized database. The authors would appreciate learning of errors or ommissions that readers and users may discover in this bibliography. We would also like to hear how the particular subject coding system used here might be improved on the basis of actual use.

The data used to compile this bibliography is stored on magnetic tape, filed at the Pacific Biological Station, Nanaimo, B.C., Canada V9R 5K6, and can be searched there on line. The librarian at the Pacific Biological Station should be contacted for further information regarding the database or specific search requests. Address: The Librarian, Fisheries Research Branch, Department of Fisheries and Oceans, Pacific Biological Station, Nanaimo, B.C., Canada V9R 5K6. Tel. area code 604 756-7000.

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OUTLINE OF KEY WORDS

SPECIES

Oncorhynchus:

- Amago Salmon
- Chinook Salmon
- Chum Salmon
- Coho Salmon
- Masu Salmon
- Pink Salmon
- Sockeye Salmon

Salmo

- Atlantic Salmon
- Steelhead Trout

General

- Pacific Salmon (General)
- Salmon (General)

LIFE STAGE

Alevin

- hatching to emergence

Fry

- emergence to arrival at nursery area

Fingerling

- arrival at nursery area to smoltification

Smolt

- smoltification to ocean entry

Juvenile

- freshwater stage not specified

Immature

- Ocean entry to beginning of homing migration

Mature

- beginning of homing migration to spawning

Kelt

- spawning to ocean re-entry

Residual

-

Landlocked

-

GEOGRAPHIC LOCATION

Pacific Region

North America
- Western Alaska
- Central Alaska
- Southeastern Alaska
- Yukon
- Northern British Columbia
- Southern British Columbia
- Washington
- Oregon
- California
- Colorado, Idaho
- Mexico

Asia

- Eastern Kamchatka to Chuchuki Peninsula
- Sea of Okhotsk
  - includes adjacent territories
- Sea of Japan
  - includes Korea and adjacent territories
- Japan

South Pacific

- New Zealand

Altantic Region

- Greenland
- Iceland and Northern Europe
- Southern Europe

- Atlantic Canada and United States
- Great Lakes

Arctic Region

- Arctic North America
- Eastern Arctic Russia
- Western Arctic Russia

Ocean Regions

- Bering Sea
- Eastern North Pacific
- Central North Pacific
- Western North Pacific
- Eastern North Atlantic
- Western North Atlantic

Habitat

- Lake
- Reservoir or Impoundment
- River
- Tributary
- Estuary
- Inshore
- Open Ocean
- Artifical Obstruction
- Natural Obstruction

Migration Events

- Migration (General)
- Non-Migratory Movements
- Initiation of Downstream Migration
- Smoltification
- Desmoltification
- Seawater adaptation
- Homing
- Schooling
- Initiation of Homing Migration
- Initiation Upstream Migration freshwater adaptation
- Initiation of Stream Entry
- Straying
- Termination of Migration
- Reverse Migration

Migration Parameters

- Diel Timing
  - time of day
- Direction
  - compass direction
- Horizontal Distribution (Geographic)
  -
- Pattern
  - route followed by habitat type
- Route
  - route followed by geographical location
- Seasonal Timing
  - time of year
- Speed of Migration
  - rate of travel
- Vertical Distribution
  -
- Vertical Movement
  -

Migration Mechanisms

- Direction Finding (General)
- Imprinting and Learning
- Navigation
- Orientation
- Preference
- Random Movement
- Taxis
- Voluntary Displacement

Migration Influences

- Age
- Aggressive Behaviour and Territoriality
- Celestial Cues
- Current
- Disease
- Dissolved Gas Concentrations
- Electric fields
- Food Availability
- Gravity
- Inertial Cues
- Landmarks
- Light Intensity
- Magnetic Fields
- Obstructions

- Odors
- Parasites
- Pheromones
- Photoperiod
- Pollutants
- Population Density
- Predation
- Reservoirs and Impoundments
- Salinity
- Size and Growth
- Sound
- Stage of Migration
    - physiological or morphological changes
- Tide
- Time of Day
- Time of Year
- Turbitity
- Visual Images
- Water Level and Flow Rate
- Water Pressure
- Water Temperature
- Weather
- Influences (miscellaneous)

Anatomical Systems

- Organ Systems (General)
- Circulatory System
- Digestive Systems
- Endocrine System (General)
    - Gonadal System
    - Pineal System
    - Pituitary System
    - Thyroid System
    - Ultimobranchial System
- Interrenal System
- Locomotory System
- Olfactory System
- Osoregulatory and Excretory System
- Reproductive System
- Respiratory System
- Skeletal and Integumentary System
- Visual System

Disciplines

- Behaviour
- Energetics
- Evolution
- Genetic Aspects
- Morphological Aspects
- Physiological and Biochemical Aspects

Methods and Techniques

- Capture
  - gillnetting, longlining, seining, etc.
- Counts
  - fence counts, fyke net counts, etc.
- Displacement
  - artificial relocation of fish
- Guiding
  - artifical redirection
- Hydroacoustics
- Laboratory Study
- Marking
- Modelling
- Occlusion
  - modification of sense organ to render inoperative
- Sonic or Radio Tracking
- Stock Identification
  - Biogeochemical Analysis
  - Electrophoresis and Serology
  - Morphometrics and Meristics
  - Otolith Analysis
  - Parasite Tags
  - Scale Analysis
- Tagging

1

Abakumov, V.A. 1961.
Seasonal races among anadromous fishes. -- Vopr. Ikhtiol. 17:179-190 (Fish. Res. Board Can. Transl. Ser. 353).

Chum Salmon - Mature / River / Seasonal Timing - Evolution

2

Abramov, V.V. 1949.
Adaptive features of the young Pacific salmon belonging to the genus *Oncorhynchus*. -- Dokl. Akad. Nauk SSR. 67(2):393-396 (Pp.1-5 *in* Pacific salmon: Selected articles from Soviet periodicals. -- Jerusalem: Israel Program for Scientific Translations. 1961.).

Pacific Salmon (General) - Juvenile / Migration (General)

3

Adams, B.L., W.S. Zaugg, and L.R. McLain. 1973.
Temperature effect on parr-smolt transformation in steelhead trout (*Salmo gairdneri*) as measured by gill sodium - potassium stimulated adenosine triphosphatase. -- Comp. Biochem. Physiol. 44A:1333-1339.

Steelhead Trout - Fingerling, Smolt / Osmoregulatory and Excretory System, Smoltification, Seawater Adaptation - Water Temperature / Laboratory Study

4

Adams, B.L., W.S. Zaugg, and L.R. McLain. 1975.
Inhibition of salt water survival and Na-K-ATPase elevation in steelhead trout (*Salmo gairdneri*) by moderate water temperatures. -- Trans. Am. Fish. Soc. 104(4):766-769.

Steelhead Trout - Fingerling, Smolt / Smoltification - Water Temperature / Osmoregulatory and Excretory System - Physiological and Biochemical Aspects / Seawater Adaptation / Laboratory Study

5

Aida, K., R.S. Nishioka, and H.A. Bern. 1980.
Changes in the Corpuscles of Stannius of coho salmon (*Oncorhynchus kisutch*) during smoltification and seawater adaptation. -- Gen. Comp. Endocrinol. 41(3):296-304.

Coho Salmon - Smolt / Smoltification, Seawater Adaptation - Physiological and Biochemical Aspects, Interrenal System / Laboratory Study

6

Akhmerov, A.Kh. 1963.
Helminths as biological indicators of local stocks of Amur anadromous salmon (Oncorhynchus). -- Vopr. Ikhtiol. 3(3):536-555 (Fish. Res. Board Can. Transl. Ser. 1048).

Chum Salmon, Pink Salmon / Sea of Okhotsk / Stock Identification - Parasite Tags

7

Akulin, V.N. 1966.
Changes in fatness of young sockeye as related to their downstream migration. -- Rybn. Khoz. 42(8):11-12 (Fish. Res. Board Can. Transl. Ser. 716).

Sockeye Salmon - Juvenile / Digestive System - Physiological and Biochemical Aspects (Stage of Migration)

8

Akulin, V.N. 1969.
Fatty acid composition of muscle phospholipids of sockeye salmon, Oncorhynchus nerka at various stages of its life cycle. -- J. Evol. Biochem. Physiol. 5:334-336.

Sockeye Salmon - Juvenile, Mature / Organ Systems (General), Seawater Adaptation, Freshwater Adaptation - Physiological and Biochemical Aspects / Laboratory Study

9

Akulin, V.N. 1969.
Fatty acid composition of the phospholipids of the muscles and liver of the sockeye salmon (Oncorhynchus nerka (Walb.)) and of the zooplankton from Lake Dal'neye. -- Probl. Ichthyol. 9(6):880-887.

Sockeye Salmon - Mature, Juvenile / Inshore, River, Lake / Digestive System - Physiological and Biochemical Aspects (Stage of Migration) / Laboratory Study

10

Akulin, V.N. 1969.
Fatty acid composition of muscle phospholipids of sockeye salmon (Oncorhynchus nerka), at various stages of its life cycle. -- Zh. Evol. Biokhim. Fiziol. 5(4):411-414 (Fish. Res. Board Can. Transl. Ser. 1471).

Sockeye Salmon - Juvenile, Mature / Organ Systems (General) - Physiological and Biochemical Aspects (Stage of Migration) / Seawater Adaptation / Laboratory Study

11

Akulin, V.N., M.A. Chebotareva, and E.M. Kreps. 1969.
Fatty acids of phospholipids of the brain, muscles, and liver of the anadromous salmon, Oncorhynchus nerka in freshwater and marine conditions. -- J. Evol. Biochem. Physiol. 5:366.

Sockeye Salmon - Juvenile, Mature / Organ Systems (General), Seawater Adaptation, Freshwater Adaptation - Physiological and Biochemical Aspects / Laboratory Study

12

Alabaster, J.S. 1970.
River flow and upstream movement and catch of migratory salmonids. -- J. Fish Biol. 2:1-13.

Atlantic Salmon - Mature / River / Initiation of Upstream Migration, Termination of Migration - Water Level and Flow Rate, Influences (Miscellaneous) / Count

13

Ali, M.A. 1958.
The ocular structure, retinomotor and photobehavioral responses of juvenile Pacific salmon. -- Ph.D. thesis. -- University of British Columbia, Vancouver, British Columbia. -- 172p.

Not seen.

Pacific Salmon (General) / Visual System - Physiological and Biochemical Aspects

14

Ali, M.A. 1959.
The ocular structure, retinomotor and photobehavioral responses of juvenile Pacific salmon. -- Can. J. Zool. 37:965-996.

Pacific Salmon (General) - Alevin, Fry, Fingerling, Smolt / Visual System - Physiological and Biochemical Aspects / Initiation of Downstream Migration - Visual images / Voluntary Displacement / Laboratory Study

15

Ali, M.A. 1960.
The effect of temperature on the juvenile sockeye salmon retina. -- Can. J. Zool. 38:169-171.

Sockeye Salmon - Fry / Visual System - Physiological and Biochemical Aspects (Water Temperature) / Laboratory Study

16

Ali, M.A. 1961.
The correlation of photobehavioral and retinomotor responses in the Pacific salmon. Pp.415-417 _in_ B.C. Cristensen and B. Buchmann (ed.). Progress in photobiology. --Elsevier, Amsterdam, Netherlands.

Sockeye Salmon, Pink Salmon, Chum Salmon - Fry / Vertical Movement, Diel Timing, Voluntary Displacement / Initiation of Downstream Migration - Visual images

17

Ali, M.A. 1962.
Influence of light intensity on retinal adaptation in Atlantic salmon (_Salmo salar_) yearlings. -- Can. J. Zool. 40:561-570.

Atlantic Salmon - Fingerling / Visual System - Physiological and Biochemical Aspects / Laboratory Study

18

Ali, M.A. 1966.
The role of vision in fish migration. Pp.12 _in_ N. Kawamoto (convener). Physiological basis of fish migration in the Pacific area. -- Proc. Pac. Sci. Congr. 11(7).

Salmon (General) / Migration (General) - Visual images / Visual System - Physiological and Biochemical Aspects

19

Ali, M.A., and W.S. Hoar. 1959.
Retinal responses of pink salmon associated with its downstream migration. -- Nature 184:106-107.

Pink Salmon - Fry / Visual System - Physiological and Biochemical Aspects / Initiation of Downstream Migration - Visual images / Voluntary Displacement / Laboratory Study

20

Ali, M.A., W.R. Stevenson, and J.S. Press. 1961.
Histophysiological studies of the juvenile Atlantic salmon (Salmo salar) retina. -- Can. J. Zool. 39(2):123-128.

Atlantic Salmon - Fingerling / Visual System - Physiological and Biochemical Aspects / Laboratory Study

21

Allan, I.R.H., and M.J. Bulleid. 1963.
Long distance migration of Atlantic salmon. -- Nature 200:89.

Atlantic Salmon - Immature / Southern Europe, Greenland / Route / Tagging

22

Allen, G.H. 1956.
Migration distribution, and movement of Puget Sound silver salmon. -- Ph.D. thesis. -- University of Washington, Seattle, Washington. -- 322p.

Coho Salmon - Immature, Mature / Chinook Salmon - Mature / Washington / Inshore / Route / Marking / Initiation of Stream Entry - Weather / Homing

23

Allen, G.H. 1959.
Behavior of chinook and silver salmon. -- Ecology 40(1):108-113.

Coho Salmon, Chinook Salmon - Mature / Washington / River / Seasonal Timing, Initiation of Stream Entry - Weather, Water Temperature / Diel Timing

24

Allen, G.H. 1966.
Ocean migration and distribution of fin-marked coho salmon. -- J. Fish. Res. Board Can. 23(7):1043-1061.

Coho Salmon - Immature, Mature / Washington, Oregon, California, Southern British Columbia / Inshore / Seasonal Timing, Route, Speed of Migration / Marking

25

Allen, G.H. 1967.
Contribution of Puget Sound coho salmon, Oncorhynchus kisutch, to the 1953 Pacific coast commercial troll fishery. -- Trans. Am. Fish. Soc. 96(1):42-54.

Coho Salmon - Mature / Washington, Southern British Columbia / Inshore / Route, Speed of Migration, Seasonal Timing / Marking

26

Allen, G.H., J. Miyamoto, and W. Harper. 1978.
Rate of straying in adult coho (silver) salmon (Oncorhynchus kisutch) from smolts released at an intertidal location. -- Calif. Coop. Fish. Res. Unit. Res. Rep. Ser. 78-1:44p.

Coho Salmon - Mature / California / Straying / Marking

27

Allen, K.R. 1944.
Studies on the biology of the early stages of salmon (Salmo salar). 4. The smolt migration in the Thurso River in 1938. -- J. Anim. Ecol. 13:63-85.

Atlantic Salmon - Smolt / Southern Europe / River / Seasonal Timing, Initiation of Downstream Migration - Water Level and Flow Rate, Water Temperature, Weather, Light Intensity / Smoltification - Size and Growth / Speed of Migration / Count, Tagging, Marking

28

Allen, K.R. 1967.
Results of Atlantic salmon tagging in the Maritime provinces of Canada, 1964-66. -- Int. Comm. Northwest Atl. Fish. Redbook 1967(3):69-73.

Atlantic Salmon - Immature / Atlantic Canada and United States, Greenland / Route - Size and Growth / Tagging

29

Alm, G. 1934.
Salmon in the Baltic precincts. -- Rapp. P.-V. Reun. Cons. Int. Explor. Mer 92:1-63.

Atlantic Salmon - Immature, Mature / Iceland and Northern Europe / River, Inshore / Seasonal Timing / Route, Horizontal Distribution (Geographic) / Tagging

30

Alm, G. 1958.
Seasonal fluctuations in the catches of salmon in the Baltic. -- J. Cons. Cons. Int. Explor. Mer 23:399-433.

Atlantic Salmon - Adult / Iceland and Northern Europe / Inshore / Seasonal Timing / Capture

31

Alverson, D.L. 1953.
Migrations of silver salmon in Puget Sound. -- Wash. Dep. Fish. Fish. Res. Pap. 1(1):13-21.

Coho Salmon - Mature / Washington / Inshore, River / Route, Speed of Migration / Tagging

32

Amos, M.H., R.E. Anas, and R.E. Pearson. 1963.
Use of a discriminant function in the morphological separation of pink salmon, Oncorhynchus gorbuscha (Walbaum). -- Int. North Pac. Fish. Comm. Bull. 11:73-85.

Pink Salmon - Adult / Pacific Ocean (General) / Open Ocean / Route / Stock Identification - Scale Analysis, Morphometrics and Meristics

33

Anas, R.E., and J.R. Gauley. 1956.
Blueback salmon, Oncorhynchus nerka age and length at seaward migration past Bonneville Dam. -- U.S. Fish Wildl. Serv. Spec. Sci. Rep. Fish. 185:46p.

Sockeye Salmon - Juvenile / Washington, Oregon / River, Artificial Obstruction / Seasonal Timing, Speed of Migration / Marking, Count

34

Anas, R.E., and S. Murai. 1969.
Use of scale characters and a discriminant function for classifying sockeye salmon (Oncorhynchus nerka) by continent of origin. -- Int. North Pac. Fish. Comm. Bull. 26:157-192.

Sockeye Salmon / Pacific Ocean (General) / Stock Identification - Scale Analysis

35

Andrew, F.J., and G.H. Geen. 1960.
Sockeye and pink salmon production in relation to proposed dams in the Fraser River system. -- Int. Pac. Salmon Fish. Comm. Bull. 11:259p.

Pacific Salmon (General) - Mature, Juvenile / Southern British Columbia / River / Migration (General) - Obstruction

36

Andrew, F.J., L.R. Kersey, and P.C. Johnson. 1955.
An investigation of the problem of guiding downstream - migrant salmon at dams. -- Int. Pac. Salmon Fish. Comm. Bull. 8:65p.

Pacific Salmon (General) - Juvenile / Artificial Obstruction / Guiding

37

Andrews, C.W. 1943.
Smolt marking on the North River, Petitcodiac, N.B. (Atlantic salmon and trout investigations, 1943. Vol.28). -- Fish. Res. Board Can. Manuscr. Rep. Biol. Stn. 335(1):9p.

Atlantic Salmon - Smolt / Atlantic Canada and United States / River / Seasonal Timing, Initiation of Downstream Migration - Water Level and Flow Rate, Water Temperature / Count

38

Andrews, C.W. 1944.
Report on salmon trap operation, Pollett River, 1944. (Atlantic salmon and trout investigations, 1944. Vol.30). -- Fish. Res. Board Can. Manuscr. Rep. Biol. Stn. 373(3):12p.

Atlantic Salmon - Smolt / Atlantic Canada and United States / River / Seasonal Timing, Initiation of Downstream Migration - Water Temperature, Water Level and Flow Rate / Pattern / Speed of Migration - Reservoirs and Impoundments / Count

39

Andrews, C.W. 1945.
Report on smolt trap operation, Pollett River, 1945. (Atlantic salmon and trout investigations, 1945. Vol.33). -- Fish. Res. Board Can. Manuscr. Rep. Biol. Stn. 381(4):9p.

Atlantic Salmon - Smolt / Atlantic Canada and United States / River / Seasonal Timing - Water Level and Flow Rate / Count

40

Andrews, C.W. 1947.
Report of Pollett River smolt trap operation, 1947. -- Fish. Res. Board Can. Manuscr. Rep. Biol. Stn. 365:4p.

Atlantic Salmon - Smolt / Atlantic Canada and United States / River / Seasonal Timing / Count

41

Anon. 1937.
Return of salmon to home streams. -- Pac. Fisherman 35(10):31; 35(11):38.

Pacific Salmon (General) / Homing

42

Anon. 1962.
Long distance migrations by salmon. -- Scott. Fish. Bull. 17:25.

Atlantic Salmon - Adult / Southern Europe, Greenland / Route / Tagging

43

Anon. 1968.
Computer analysis of salmon migration. -- Nature 218:216-217.

Atlantic Salmon - Mature / River / Migration (General)

44

Anon. 1969.
Report of the ICES/ICNAF joint working party on North Atlantic salmon. -- Int. Counc. Explor. Sea Coop. Res. Rep. Ser. A 12:18p.

Atlantic Salmon / Migration (General)

45

Anon. 1970.
Third report of the ICES/ICNAF joint working party on North Atlantic salmon. -- Int. Counc. Explor. Sea Coop. Res. Rep. Ser. A 24:36p.

Atlantic Salmon / Migration (General)

46

Anon. 1973.
Fourth report of the ICES/ICNAF joint working party on North Atlantic salmon. -- Int. Counc. Explor. Sea Coop. Res. Rep. Ser. A 35:37p.

Atlantic Salmon / Migration (General)

47

Anon. 1973.
Hydromechanics of fish migration. -- Nature 245:7.

Salmon (General) - Mature / Energetics, Speed of Migration / Locomotory System - Physiological and Biochemical Aspects

48

Anon. 1981.
Reports of the ICES working group on North Atlantic salmon, 1979 and 1980. -- Int. Counc. Explor. Sea Coop. Res. Rep. 104:46p.

Atlantic Salmon / Migration (General)

49

Armour, C.L. 1974.
Serum antigenic differences in spring chinook salmon (*Oncorhynchus tshawytscha*) from two separate rivers. -- Trans. Am. Fish. Soc. 103(2):379-382.

Chinook Salmon - Mature, Juvenile / River / Stock Identification - Electrophoresis and Serology

50

Arnold, G.P. 1974.
Rheotropism in fishes. -- Biol. Rev. 49:515-576.

Salmon (General) / Taxis, Direction Finding (General), Behaviour - Current / Migration (General)

51

Aro, K.V. 1961.
Summary of salmon enumeration and sampling data, Babine River counting weir, 1946 to 1960. -- Fish. Res. Board Can. Manuscr. Rep. Ser. (Biol.) 708:63p.

Coho Salmon, Pink Salmon, Sockeye Salmon, Chinook Salmon - Mature / Northern British Columbia / River / Diel Timing, Seasonal Timing / Count

52

Aro, K.V. 1968.
Times of passage of Skeena River sockeye and pink salmon through the commercial fishing area. -- Fish. Res. Board Can. Manuscr. Rep. Ser. 984:169p.

Sockeye Salmon - Mature / Northern British Columbia / Inshore, Estuary, River / Seasonal Timing / Count, Capture, Tagging

53

Aro, K.V., and M.P. Shepard. 1967.
Salmon of the North Pacific Ocean: Part IV. Spawning populations of North Pacific salmon. 5. Pacific salmon in Canada. -- Int. North Pac. Fish. Comm. Bull. 23:225-327.

Coho Salmon, Chinook Salmon, Chum Salmon, Sockeye Salmon, Pink Salmon - Mature / Southern British Columbia, Northern British Columbia / Inshore, River / Seasonal Timing

54

Aspinwall, M. 1963.
Little Togiak River smolt enumeration, 1961. -- Univ. Wash. Fish. Res. Inst. Circ. 181:14p.

Sockeye Salmon - Smolt / Western Alaska / River / Seasonal Timing - Size and Growth / Diel Timing

55

Auvergnal, R., and M. Secondat. 1941.
Influence des variations de salinte sur la prêssion osmotique des alevins vêsiculês de saumon migrateur (Salmo salar L.). -- Bull. Inst. Oceanogr. Monaco 805:7p.

Not seen.

Atlantic Salmon - Juvenile / Osmoregulatory and Excretory System - Physiological and Biochemical Aspects

56

Azbelev, V.V. 1960.
Information on the biology and survival of salmon of the Kola Peninsula. -- Tr. Polyarn. Nauchno-Issled. Proektivnogo Inst. Morsk. Rybn. Khoz. Okeanogr. 12:5-70 (Fish. Res. Board Can. Transl. Ser. 440).

Atlantic Salmon - Mature, Immature / Western Arctic Russia, Iceland and Northern Europe / Inshore, Open Ocean, River / Route, Seasonal Timing, Vertical Distribution

57

Azbelev, V.V., S.S. Surkov, and A.A. Iakovenko. 1962.
Biological data on pink salmon transplanted to the White Sea and the Barents Sea. -- Nauchno-Teknicheskii Biull. Polyarn. Nauchno-Issled. Proektivnogo Inst. Rybn.

Khoz. Okeanogr. 2-3:37-38 (Univ. Wash. Fish. Res. Inst. Cir. 192:17-19).

Pink Salmon - Mature / Western Arctic Russia / Inshore / Route

58

Azbelev, V.V., and A.A. Yakovenko. 1964.
Data on the transplantation of pink salmon to the basins of the Barents and White Seas. -- Tr. Polyarn. Nauchno-Issled. Proektivnogo Inst. Rybn. Khoz. Okeanogr. 15:7-26 (Univ. Wash. Fish. Res. Inst. Cir. 218:15-23).

Pink Salmon - Adult / Western Arctic Russia / Inshore / Route, Seasonal Timing

59

Bachman, R.A. 1982.
A growth model for drift-feeding salmonids: a selective pressure for migration. Pp.128-135 *in* E.L. Brannon and E.O. Salo (ed.). Proceedings of the Salmon and Trout Migratory Behavior Symposium. -- School of Fisheries, University of Washington, Seattle, Washington.

Salmon (General) / Migration (General) / Modelling

60

Baggerman, B. 1959.
The role of external factors in the ecological adaptation of fishes. Pp.24-37 *in* A. Gorbman (ed.). Comparative endocrinology: Proceedings of the Columbia University Symposium on Comparative Endocrinology. -- John Wiley and Sons, New York, New York.

Pacific Salmon (General) - Juvenile / Preference - Salinity (Photoperiod, Thyroid System) / Initiation of Downstream Migration - Thyroid System

61

Baggerman, B. 1960.
Factors in the diadromous migrations of fish. -- Symp. Zool. Soc. Lond. 1:33-60.

Salmon (General) - Juvenile / Migration (General) - Physiological and Biochemical Aspects, Endocrine System (General) / Preference - Salinity (Photoperiod, Thyroid System) / Initiation of Downstream Migration, Osmoregulatory and Excretory System, Smoltification - Thyroid System / Osmoregulatory and Excretory System - Pituitary System, Interrenal System / Initiation of Downstream Migration - Water Temperature, Light Intensity, Water Level and Flow Rate, Weather

62

Baggerman, B. 1960.
Salinity preference, thyroid activity and the seaward migration of four species of Pacific salmon (*Oncorhynchus*). -- J. Fish. Res. Board Can. 17(3):295-322.

Chum Salmon, Pink Salmon, Sockeye Salmon, Coho Salmon - Fry, Fingerling, Smolt / Preference - Salinity (Photoperiod, Time of Year, Thyroid System) / Migration (General) - Evolution / Initiation of Downstream Migration - Thyroid System, Pituitary System / Osmoregulatory and Excretory System - Physiological and Biochemical Aspects, Pituitary System, Interrenal System / Laboratory Study

63

Baggerman, B. 1962.
Some endocrine aspects of fish migration. -- Gen. Comp. Endocrinol. Suppl. 1:188-205.

Salmon (General) / Migration (General) - Thyroid System, Gonadal System

64

Baggerman, B. 1963.
The effect of TSH and antithyroid substances on salinity preference and thyroid activity in juvenile Pacific salmon. -- Can. J. Zool. 41:307-319.

Coho Salmon, Pink Salmon - Juvenile / Preference - Salinity (Thyroid System) / Initiation of Downstream Migration - Thyroid System / Laboratory Study

65

Baglinière, J.L. 1976.
Etude des populations de saumon atlantique (*Salmo salar* L. 1766) en Bretagne - Basse - Normandie: II. Activité de dévalaison des smolts sur L'Ellé. -- Ann. Hydrobiol. 7:159-177.

Not seen.

Atlantic Salmon - Smolt / Southern Europe / River / Initiation of Downstream Migration - Water Level and Flow Rate, Turbidity

66

Baglinière, J.L., and G. Fontenelle. 1980.
Dévalaison de bécards de saumon atlantique (Salmo salar L.) sur la rivière Ellé, Finistère. -- Bull. Cent. Etud. Rech. Sci. Biarritz 13(1):13-22.

Not seen.

Atlantic Salmon - Kelt / Southern Europe / River

67

Bailey, E.D. 1954.
Ocean recoveries of Sacramento River tagged steelhead. -- Calif. Fish Game 40(4):436.

Steelhead Trout - Adult / California / Inshore / Route / Tagging

68

Bailey, J.E. 1971.
Osmoregulatory capability in juvenile sockeye salmon (Oncorhynchus nerka). -- Can. J. Zool. 49:841-845.

Sockeye Salmon - Juvenile / Osmoregulatory and Excretory System, Seawater Adaptation

69

Bailey, J.K., R.L. Saunders, and M.I. Buzeta. 1980.
Influence of parental smolt age and sea age on growth and smolting of hatchery-reared Atlantic salmon (Salmo salar). -- Can. J. Fish. Aquat. Sci. 37(9):1379-1386.

Atlantic Salmon - Smolt / Atlantic Canada and United States / Smoltification

70

Baker, J.C. 1975.
Protein and lipid factors in the bioenergetics of swimming in fish (Oncorhynchus kisutch). -- Ph.D. thesis. -- Oregon State University, Corvallis, Oregon. -- 122p.

Coho Salmon - Juvenile / Energetics

71

Bakkala, R.G. 1970.
Synopsis of biological data on the chum salmon, Oncorhynchus keta (Walbaum) 1792. -- U.S. Fish Wildl. Serv. Circ. 315:89p.

Also issued as: FAO Fisheries Synopsis 41.

Chum Salmon / Migration (General)

72

Bakkala, R.G. 1971.
Distribution and migration of immature sockeye salmon taken by U.S. research vessels with gillnets in offshore waters, 1956-67. -- Int. North Pac. Fish. Comm. Bull. 27:1-70.

Sockeye Salmon - Immature / Eastern Pacific Ocean, Central Pacific Ocean, Western Pacific Ocean, Bering Sea / Open Ocean / Horizontal Distribution - Current / Seasonal Timing, Route / Tagging, Capture

73

Bakshtanskii, E.L. 1964.
Observations on the migration of young pink and chum salmon in northern Europe. -- Tr. Polyarn. Nauchno-Issled. Proektivnogo Inst. Rybn. Khoz. Okeanogr. 15:45-48 (Univ. Wash. Fish. Res. Inst. Cir. 218:23-24).

Pink Salmon - Fry / Western Arctic Russia / River / Migration (General)

74

Bakshtanskii, E.L. 1970.
Downstream migrations of pink and red salmon and causes of their delay in the streams of the Kola Peninsula. -- Tr. Vses. Nauchno-Issled. Inst. Morsk. Rybn. Khoz. Okeanogr. 74:129-143 (Fish. Res. Board Can. Transl. Ser. 1765).

Sockeye Salmon, Pink Salmon - Fry, Alevin / Western Arctic Russia / River / Seasonal Timing, Initiation of Downstream Migration - Water Temperature / Voluntary Displacement, Behaviour / Diel Timing - Turbidity, Light Intensity / Speed of Migration - Light Intensity

75

Balmain, K.H., and W.M. Shearer. 1956.
Records of salmon and sea trout caught in the sea. -- Scott. Home Dep. Freshwater Salmon Fish. Res. 11:12p.

Atlantic Salmon - Adult / Southern Europe / Inshore, Open Ocean / Horizontal Distribution (Geographic) / Capture

76

Bams, R.A. 1969.
Adaptation in sockeye salmon associated with incubation in stream gravels. Pp.71-87 in T.G. Northcote (ed.). Symposium on salmon and trout in streams. H.R. MacMillan Lectures in Fisheries, 1968. -- Institute of Fisheries, University of British Columbia, Vancouver, Brititsh Columbia.

Sockeye Salmon - Fry, Alevin / Taxis - Light Intensity, Gravity, Current / Behavioural aspect / Tributary, Lake / Seasonal Timing - Evolution

77

Bams, R.A. 1976.
Results of a pink salmon transplant using males native to the recipient stream. -- Fish. Mar. Serv. (Can.) Tech. Rep. 642:46p.

Pink Salmon - Mature / Southern British Columbia / River / Seasonal Timing, Homing - Genetic Aspects / Straying / Count, Marking

78

Bams, R.A. 1976.
Survival and propensity for homing as affected by presence or absence of locally adapted paternal genes in two transplanted populations of pink salmon (Oncorhynchus gorbuscha). -- J. Fish. Res. Board Can. 33(12):2716-2725.

Pink Salmon - Mature / Southern British Columbia / Homing, Seasonal Timing - Genetic Aspects

79

Banks, J.W. 1969.
A review of the literature on the upstream migration of adult salmonids. -- J. Fish Biol. 1:85-136.

Salmon (General) - Mature / River / Homing, Energetics / Initiation of Stream Entry - Water Level and Flow Rate, Water Temperature, Dissolved Gas Concentration, Weather, Tide / Direction Finding (General) - Salinity, Dissolved Gas Concentration / Diel Timing - Light Intensity, Turbidity / Migration (General) - Obstruction, Reservoirs and Impoundments

80

Baraduc, M.M., and M. Fontaine. 1955.
Etude comparée du métabolisme respiratoire du jeune saumon sédentaire (parr) et migrateur (smolt). -- C. R. Soc. Biol. Paris 149:1327-1329.

Not seen.

Atlantic Salmon - Fingerling, Smolt / Respiratory System - Physiological and Biochemical Aspects (Stage of Migration)

81

Barannikova, I.A. 1975.
Funktsional'nie osnovy migratsii ryb. -- Izdatel'stvo Nauka, Leningradskoe Otdelenie, Leningrad, USSR. -- 210p.

Not seen.

Salmon (General) / Migration (General)

82

Barber, F.G. 1978.
On the origin of Oncorhynchys gorbuscha. -- Fish. Mar. Serv. (Can.) Tech. Rep. 814:3p.

Pink Salmon / Migration (General) - Evolution

83

Barber, F.G. 1979.
On ocean migration, speciation, cycle dominance, and density dependance in Pacific salmon. -- Fish. Mar. Serv. (Can.) Tech. Rep. 872:7p.

Pacific Salmon (General) - Adult / Open Ocean / Navigation / Migration (General) - Evolution

84

Barker, M. 1979.
Summary of salmon travel time from tagging studies, 1950-1974. -- Wash. Dep. Fish. Tech. Rep. 48:30p.

Chinook Salmon, Chum Salmon, Pink Salmon, Coho Salmon - Adult / Washington / Inshore / Speed of Migration / Tagging

85

Barnaby, J.T. 1952.
Offshore fishing in Bristol Bay and Bering Sea. -- U.S. Fish Wildl. Serv. Spec. Sci. Rep. Fish. 89:30p.

Coho Salmon, Chinook Salmon, Sockeye Salmon, Pink Salmon, Chum Salmon - Mature / Bering Sea, Western Alaska / Open Ocean / Route, Direction, Horizontal Distribution (Geographic) / Capture

86

Barraclough, W.E., and A.C. Phillips. 1978.
Distribution of juvenile salmon in the southern Strait of Georgia during the period April to July 1966-1969. -- Fish. Mar. Serv. (Can.) Tech. Rep. 826:47p.

Pink Salmon, Chum Salmon, Sockeye Salmon, Chinook Salmon, Coho Salmon - Immature / Southern British Columbia / Inshore / Route, Horizontal Distribution (Geographic) - Tide, Current / Pattern - Salinity

87

Barsuk, L.N. 1972.
Biochemical study of far eastern salmon during spawning migration. -- Izv. Tikhookean. Nauchno-Issled. Inst. Rybn. Khoz. Okeanogr. 77:127-133 (Fish. Res. Board Can. Transl. Ser. 2851).

Pink Salmon, Masu Salmon - Mature / Sea of Okhotsk / Stock Identification - Electrophoresis and Serology

88

Bartel, R. 1971.
Migration of salmon smolts (*Salmo salar* L.) from the River Drawa to the sea. -- Rocz. *Nauk. Roln.* Ser. H Rybactwo 93(2):7-11.

In Polish; English abstract.

Atlantic Salmon - Smolt / Iceland and Northern Europe / River / Speed of Migration

89

Bates, D.W., and S.G. Jewett. 1961.
Louver efficiency in deflecting downstream migrant steelhead. -- Trans. Am. Fish. Soc. 90(3):336-337.

Steelhead Trout - Juvenile / Guiding

90

Bates, D.W., and J.G. Vanderwalker. 1970.
Travelling screens for collection of juvenile salmon (Models I and II). -- U.S. Fish Wildl. Serv. Spec. Sci. Rep. Fish. 608:15p.

Coho Salmon, Chinook Salmon - Juvenile / Guiding

91

Bath, R.N., and F.B. Eddy. 1979.
Salt and water balance in rainbow trout (*Salmo gairdneri*) rapidly transferred from fresh water to seawater. -- J. Exp. Biol. 83:193-202.

Steelhead Trout - Adult / Seawater Adaptation, Osmoregulatory and Excretory System - Physiological and Biochemical Aspects / Laboratory Study

92

Baver, J.A., J.D. McIntyre, and H.H. Wagner. 1976.
Recycling of summer steelhead at Winchester Dam, Oregon. -- Oreg. Dep. Fish Wildl. Inf. Rep. Ser. Fish. 76-2:4p.

Steelhead Trout - Mature / Oregon / Artificial Obstruction / Pattern - Obstruction

93

Bax, N.J. 1982.
Seasonal and annual variations in the movement of juvenile chum salmon through Hood Canal, Washington. Pp.208-218 *in* E.L. Brannon and E.O. Salo (ed.). Proceedings of the Salmon and Trout Migratory Behavior Symposium. -- School of Fisheries, University of Washington, Seattle, Washington.

Chum Salmon - Immature / Washington / Inshore / Route, Speed of Migration - Time of Year (Current) / Marking

94

Becker, C.D. 1962.
Estimating red salmon escapements by sample counts from observation towers. -- Fish. Bull. Fish Wildl. Serv. 61(192):355-369.

Sockeye Salmon - Mature / Western Alaska / River / Seasonal Timing / Count

95

Behrisch, H.W. 1981.
Migration distance, body condition and metabolic capacity in Pacific salmon. -- Proc. Alaska Sci. Conf. 32:90-91.

Pacific Salmon (General) - Mature / River / Energetics

96

Belding, D.L. 1939.
Migration of the Atlantic salmon (Salmo salar) in the Gulf of St. Lawrence as determined by tagging experiments. -- Trans. Am. Fish. Soc. 69:290-295.

Atlantic Salmon - Mature / Atlantic Canada and United States / Inshore / Route, Seasonal Timing, Speed of Migration / Tagging

97

Belding, D.L. 1939.
The Atlantic salmon of the Gulf of St. Lawrence. Pp.26-31 in F.R. Moulton (ed.). The migration and conservation of salmon. -- Publ. Amer. Assoc. Adv. Sci. 8.

Atlantic Salmon - Adult / Atlantic Canada and United States / Inshore / Route / Tagging

98

Belding, D.L. 1939.
The number of eggs and pyloric appendages as criteria of river varieties of the Atlantic salmon (Salmo salar). -- Trans. Am. Fish. Soc. 69:285-289.

Atlantic Salmon - Mature / Atlantic Canada and United States / Stock Identification - Morphometrics and Meristics

99

Belding, D.L., and J.A. Kitson. 1934.
Spring-run and fall-run Atlantic salmon. -- Trans. Am. Fish. Soc. 64:225-230.

Atlantic Salmon - Mature / River / Seasonal Timing - Genetic Aspects

100

Belding, D.L., and G. Prefontaine. 1938.
Etudes sur le saumon de l'Atlantique (Salmo salar L.): I. Organization et resultats généraux des recherches dans le

golfe Saint-Laurent en 1937. -- Contrib. Inst. Zool. Univ. Montreal 2:50p.

Atlantic Salmon - Mature / Inshore, River / Route / Tagging

101

Benditt, E., P. Morrison, and L. Irving. 1941.
The blood of the Atlantic salmon during migration. -- Biol. Bull. (Woods Hole, Mass.) 80:429-440.

Atlantic Salmon - Mature / Atlantic Canada and United States / River, Estuary / Respiratory System, Circulatory System - Physiological and Biochemical Aspects (Stage of Migration) / Laboratory Study

102

Bentley, W.W., and H.L. Raymond. 1976.
Delayed migrations of yearling chinook salmon since completion of Lower Monumental and Little Goose Dams on the Snake River. -- Trans. Am. Fish. Soc. 105(3):422-424.

Chinook Salmon - Juvenile / Washington, Colorado, Idaho / River, Reservoir or Impoundment, Artificial Obstruction / Speed of Migration - Reservoirs and Impoundments, Obstruction / Marking

103

Berdyshev, G.D. 1970.
Ultrastructure of parenchyma cells of the gorbuscha (*Oncorhynchus gorbuscha* Walb.) liver and its alterations during spawning migration. -- Tsitol. Genet. 1969(3):255-260.

In Russian; English abstract.

Pink Salmon - Mature / River / Digestive System - Morphological Aspects (Stage of Migration) / Freshwater Adaptation

104

Berg, M. 1961.
Pink salmon (*Oncorhynchus gorbuscha*) in northern Norway in the year 1960. -- Acta Borealia A:Scientia 17:24p.

Pink Salmon - Adult / Iceland and Northern Europe / Horizontal Distribution (Geographic), Route

105

Berg, M. 1977.
Pink salmon, Oncorhynchus gorbuscha (Walbaum) in Norway. -- Rep. Inst. Freshwater Res. Drottningholm 56:12-17.

Pink Salmon - Adult / Western Arctic Russia, Iceland and Northern Europe / Horizontal Distribution (Geographic)

106

Berg, M. 1977.
Tagging of migrating salmon smolts (Salmo salar L.) in the Vardnes River, Troms, northern Norway. -- Rep. Inst. Freshwater Res. Drottningholm 56:5-11.

Atlantic Salmon - Adult / Iceland and Northern Europe / Inshore / Route, Straying / Tagging

107

Bergeron, J. 1968.
Résultats du marquage des saumoneaux, Salmo salar L., de la rivière Port-Daniel (Bonaventure) au cours de la période 1953-1958. -- Que. Minist. Ind. Comm. Stn. Biol. Mar. Cah. Inf. 45.

Not seen.

Atlantic Salmon / Marking

108

Bern, H.A. 1978.
Endocrinological studies on normal and abnormal salmon smoltification. Pp. 97-100 in P.J. Gaillard and H.H. Boer (ed.). Comparative endocrinology. -- Elsevier, Amsterdam, Netherlands.

Coho Salmon - Smolt / Smoltification - Pituitary System, Interrenal System, Thyroid System, Endocrine System (General)

109

Bernie, M. 1975.
Electrophoretic variation in the genus Oncorhynchus: the methodology, genetic basis, and practical applications to fisheries research and management. -- M.Sc. thesis. -- University of Washington, Seattle, Washington. -- 101p.

Pacific Salmon (General) / Stock Identification - Electrophoresis and Serology

110

Berry, J. 1932.
Report on an investigation of the migration of smolts in the River Tay during spring 1931. -- Fish. Board Scotl. Salmon Fish. 1931(6):21p.

Atlantic Salmon - Smolt / Southern Europe / River / Seasonal Timing, Initiation of Downstream Migration - Water Level and Flow Rate, Weather / Pattern / Skeletal and Integumentary System - Morphological Aspects

111

Berry, J. 1933.
Notes on the migration of salmon smolts from Loch Ness; summer 1932. -- Fish. Board Scotl. Salmon Fish. 1933(1):12p.

Atlantic Salmon - Smolt / Southern Europe / River / Seasonal Timing / Initiation of Downstream Migration, Termination of Migration - Weather / Capture

112

Bertmar, G., and R. Toft. 1969.
Sensory mechanisms of homing in salmonid fish: I. Introductory experiments on the olfactory sense in grilse of Baltic salmon (Salmo salar). -- Behaviour 35:235-241.

Atlantic Salmon - Mature / Iceland and Northern Europe / Inshore, Estuary, River / Homing / Direction Finding (General) - Odours / Occlusion, Tagging

113

Bethe, M.L., and P.V. Krasnowski. 1979.
Stock separation studies of Cook Inlet sockeye salmon based on scale pattern analysis, 1977. -- Alaska Dep. Fish Game Inf. Leafl. 180:31p.

Sockeye Salmon / Central Alaska / Stock Identification - Scale Analysis

114

Bethe, M.L., P.V. Krasnowski, and S. Marshall. 1980.
Origins of sockeye salmon in the upper Cook Inlet fishery of 1978 based on scale pattern analysis. -- Alaska Dep. Fish Game Inf. Leafl. 186:45p.

Sockeye Salmon / Central Alaska / Stock Identification - Scale Analysis

115

Bevan, D.E. 1959.
Tagging experiments in the Kodiak Island area with reference to the estimation of salmon (*Oncorhynchus*) populations. -- Ph.D. thesis. -- University of Washington, Seattle, Washington. -- 52p.

Sockeye Salmon - Mature / Central Alaska / Inshore / Route / Tagging

116

Bevan, D.E. 1962.
Estimation by tagging of the size of migrating salmon populations in coastal waters. Pp.333-449 *in* T.S.Y. Koo (ed.). Studies of Alaska red salmon. -- Univ. Wash. Publ. Fish. New Ser. 1.

Sockeye Salmon - Mature / Central Alaska / Inshore / Route / Tagging

117

Bevan, D.E., J. Lechner, and M.F. Eaton. 1972.
Timing, escapement distribution, and catch of Kodiak Island salmon, 1970. -- Univ. Wash. Fish. Res. Inst. Circ. 72-8:71p.

Sockeye Salmon, Pink Salmon - Mature / Central Alaska / River / Seasonal Timing

118

Bevan, D.E., J. Lechner, and M.F. Eaton. 1973.
Timing, escapement distribution, and catch of Kodiak Island salmon, 1971. -- Univ. Wash. Fish. Res. Inst. Circ. 73-2:52p.

Sockeye Salmon, Pink Salmon - Mature / Central Alaska / River / Seasonal Timing

119

Bevan, D.E., J. Lechner, and M.F. Eaton. 1974.
Timing escapement distribution, and catch of Kodiak Island salmon, 1972. -- Univ. Wash. Fish. Res. Inst. Circ. 74-3:72p.

Sockeye Salmon, Pink Salmon - Mature / Central Alaska / River / Seasonal Timing

120

Bevan, D.E., P.C. Pedersen, K.R. Manthey, and L.M. Malloy. 1976.
Timing, escapement distribution, and catch of Kodiak Island salmon, 1973. -- Univ. Wash. Fish. Res. Inst. Circ. 75-4:60p.

Sockeye Salmon, Pink Salmon - Mature / Central Alaska / River / Seasonal Timing

121

Bevan, D.E., P.C. Pedersen, K.R. Manthey, and L.M. Malloy. 1976.
Timing, escapement distribution, and catch of Kodiak Island salmon, 1974. -- Univ. Wash. Fish. Res. Inst. Circ. 76-2:71p.

Sockeye Salmon, Pink Salmon - Mature / Central Alaska / River / Seasonal Timing

122

Bevan, D.E., P.C. Pedersen, K.R. Manthey, and L.M. Malloy. 1980.
Timing, escapement distribution, and catch of Kodiak Island salmon, 1976. -- Univ. Wash. Fish. Res. Inst. Circ. 80-1:40p.

Sockeye Salmon, Pink Salmon - Mature / Central Alaska / River / Seasonal Timing

123

Bevan, D.E., P.C. Pedersen, K.R. Manthey, and L.M. Malloy. 1980.
Timing, escapement distribution, and catch of Kodiak Island salmon, 1978. -- Univ. Wash. Fish. Res. Inst. Circ. 80-2:89p.

Sockeye Salmon, Pink Salmon - Mature / Central Alaska / River / Seasonal Timing

124

Bevan, D.E., P.C. Pedersen, K.R. Manthey, and L.M. Malloy. 1981.
Timing, escapement distribution, and catch of Kodiak Island salmon, 1979. -- Univ. Wash. Fish. Res. Inst. Circ. 81-5:89p.

Sockeye Salmon, Pink Salmon - Mature / Central Alaska / River / Seasonal Timing

125

Bevan, D.E., P.C Pedersen, K.R. Manthey, L.M. Malloy, and D. Prokowich. 1982.

Timing, escapement distribution, and catch of Kodiak Island salmon, 1980. -- Univ. Wash. Fish. Res. Inst. Circ. 82-1:84p.

Pink Salmon - Mature / Central Alaska / Inshore, River / Seasonal Timing

126

Beverley-Burton, M. 1978.

Population genetics of *Anisakis simplex* (Nematoda: Ascaridoidea) in Atlantic salmon (*Salmo salar*) and their use as biological indicators of host stocks. -- Environ. Biol. Fish 3(4):369-376.

Atlantic Salmon / Atlantic Canada and United States, Southern Europe / Stock Identification - Parasite Tags

127

Beverley-Burton, M., and J.H.C. Pippy. 1977.

Morphometric variations among larval *Anisakis simplex* (Nematoda: Ascaridoidea) from fishes of the North Atlantic and their use as biological indicators of host stocks. -- Environ. Biol. Fish. 2(3):309-314.

Atlantic Salmon / Atlantic Canada and United States / Stock Identification - Parasite Tags

128

Beverley-Burton, M., and J.H.C. Pippy. 1978.

Distribution, prevelance and mean numbers of larval *Anisakis simplex* (Nematoda: Arcaridoidea) in Atlantic salmon, *Salmo salar* L. and their use as biological indicators of host stocks. -- Environ. Biol. Fish. 3(2):211-222.

Atlantic Salmon / Atlantic Canada and United States, Iceland and Northern Europe, Southern Europe / Stock Identification - Parasite Tags

129

Biette, R.M., D.P. Dodge, R.L. Hassinger, and T.M. Stauffer. 1981.

Life history and timing of migrations and spawning behavior of rainbow trout (*Salmo gairdneri*) populations of the Great Lakes. -- Can. J. Fish. Aquat. Sci. 38(12):1759-1771.

Steelhead Trout - Mature / Great Lakes / River / Seasonal Timing, Homing, Straying

130

Bigelow, H.B., and W.C. Schroeder. 1953.
Fishes of the Gulf of Maine. -- Fish. Bull. Fish Wildl. Serv. 53(74):1-577.

Atlantic Salmon / Atlantic Canada and United States / Migration (General)

131

Bigelow, H.B., and W.W. Welsh. 1924.
Fishes of the Gulf of Maine. -- Bull. Bur. Fish. (U.S.) 40(1):1-567.

Atlantic Salmon / Atlantic Canada and United States / Migration (General)

132

Bilton, H.T. 1971.
Data and computations used in racial analyses of even- and odd-year North American pink salmon on the basis of their scale characters. -- Fish. Res. Board Can. Tech. Rep. 234:10p.

Pink Salmon / Northern British Columbia, Southern British Columbia, Southeastern Alaska, Central Alaska, Western Alaska / Stock Identification - Scale Analysis

133

Bilton, H.T. 1972.
Identification of major British Columbia and Alaska runs of even-year and odd-year pink salmon from scale characters. -- J. Fish. Res. Board Can. 29(3):295-301.

Pink Salmon / Southern British Columbia, Northern British Columbia, Southeastern Alaska, Central Alaska, Western Alaska / Stock Identification - Scale Analysis

134

Bilton, H.T., and H.B. Messinger. 1975.
Identification of major British Columbia and Alaska runs of age 1.2 and 1.3 sockeye from their scale characters. -- Int. North Pac. Fish. Comm. Bull. 32:109-129.

Sockeye Salmon / Southern British Columbia, Northern British Columbia, Southeastern Alaska, Central Alaska, Western Alaska / Stock Identification - Scale Analysis

135

Bilton, H.T., and D.H. Smith. 1969.
Scale characteristics of sockeye salmon (Oncorhynchus nerka) originating from small nursery areas of the Skeena River system. -- Fish. Res. Board Can. Tech. Rep. 133:33p.

Sockeye Salmon / Northern British Columbia / Stock Identification - Scale Analysis

136

Bilton, T.H., and M.P. Shepard. 1959.
Scale characteristics of chum salmon (Oncorhynchus keta) from the North Pacific area in 1957. -- Fish. Res. Board Can. Manuscr. Rep. Ser. (Biol.) 688:8p.

Chum Salmon / Pacific Ocean (General) / Stock Identification - Scale Analysis

137

Bilton, T.H., and M.P. Shepard. 1962.
Progress report on Canadian studies on chum salmon scales for 1961. -- Fish. Res. Board Can. Mansucr. Rep. Ser. (Biol.) 734:5p.

Chum Salmon / Pacific Ocean (General) / Stock Identification - Scale Analysis

138

Bilton, T.H., M.P. Shepard, and D.W. Jenkinson. 1958.
The characteristics of the scales of chum salmon (Oncorhynchus keta) taken on the high seas of the North Pacific Ocean in 1956. -- Fish. Res. Board Can. Manuscr. Rep. Ser. (Biol.) 667:13p.

Chum Salmon / Pacific Ocean (General) / Stock Identification - Scale Analysis

139

Birman, I.B. 1952.
Adaptive characteristics of the spawning migration of Amur chum salmon. -- Izv. Tikhookean. Nauchno-Issled. Inst. Rybn. Khoz. Okeanogr. 37:109-127 (Fish. Res. Board Can. Transl. Ser. 104).

Chum Salmon - Mature / Sea of Okhotsk / River / Energetics, Route / Pattern - Water Level and Flow Rate / Seasonal Timing - Size and Growth, Water Temperature / Initiation of Stream Entry - Water Level and Flow Rate / Migration (General), Evolution

140

Birman, I.B. 1958.
The distribution and spawning migrations of the humpback salmon (Oncorhynchus gorbuscha Walb.) in the northeastern part of the Pacific Ocean. -- Dokl. Acad. Sci. USSR Biol. Sci. Sect. 122:871-873.

Pink Salmon - Mature / Western Pacific Ocean, Eastern Kamchatka to Chuchuki Peninsula, Sea of Okhotsk / Open Ocean, Inshore / Route, Horizontal Distribution (Geographic)

141

Birman, I.B. 1958.

On the occurence and migration of Kamchatka salmon in the northwestern part of the Pacific Ocean. Pp.31-55 in P.A. Moiseeva (ed.). Materialy po Biologii Morskovo Perioda Zhini Dalnevostochnykh Lososei. -- Vsesoiuznyi Nauchno-Issledovatel'skii Institut Morskogo Rybnogo Khoziaistva Okeanografii, Moskva, USSR. (Fish. Res. Board Can. Transl. Ser. 180).

Chum Salmon, Sockeye Salmon, Pink Salmon - Mature / Western Pacific Ocean, Eastern Kamchatka to Chuchuki Peninsula / Inshore, Open Ocean / Seasonal Timing / Horizontal Distribution (Geographic), Route - Water Temperature / Stock Identification - Scale Analysis

142

Birman, I.B. 1960.
New information on the marine period of life and the marine fishery of Pacific salmon. -- Tr. Soveshch. Iktiol. Kom. Akad. Nauk. SSSR 10:151-164 (Fish. Res. Board Can. Transl. Ser. 357).

Pink Salmon, Chum Salmon, Sockeye Salmon, Coho Salmon - Immature, Mature / Eastern Kamchatka to Chuchuki Peninsula, Western Pacific Ocean / Open Ocean, Inshore / Route / Horizontal Distribution (Geographic) - Water Temperature / Capture

143

Birman, I.B. 1964.
Vertical migrations and vertical distribution of salmon in the sea. -- Dokl. Acad. Sci. USSR Biol. Sci. Sect. 156:346-349.

Pacific Salmon (General) - Adult / Western Pacific Ocean / Open Ocean / Vertical Distribution - Time of Year (Food Availability, Water Temperature) / Capture

144

Birman, I.B. 1964.
Oceanic distribution of Pacific salmon and the influence of environment on abundance. Pp.17-36 in E.N. Pavlovskii (ed.). Lososevoe Khoziaistvo Dal'nevo Vostoka. -- Izdatel'stvo Nauka, Moskva, USSR. (Univ. Wash. Fish. Res. Inst. Cir. 227:16-25).

Pink Salmon - Mature, Adult / Chum Salmon, Sockeye Salmon - Adult / Western Pacific Ocean, Central Pacific Ocean, Sea of Japan / Open Ocean / Horizontal Distribution (Geographic), Route / Initiation of Homing Migration, Seasonal Timing - Water Temperature

145

Birman, I.B. 1968.
Migration of Pacific salmon in the Okhotsk Sea. -- Izv. Tikhookean. Nauchno-Issled. Inst. Rybn. Khoz. Okeanogr. 64:35-42 (Fish. Res. Board Can. Transl. Ser. 1420).

Pink Salmon, Chum Salmon, Sockeye Salmon - Immature, Mature / Sea of Okhotsk / Inshore, Open Ocean / Route / Seasonal Timing / Tagging, Capture

146

Birman, I.B. 1969.
Distribution and growth of young Pacific salmon of the genus Oncorhynchus in the sea. -- Probl. Ichthyol. 9(5):651-666.

Masu Salmon, Coho Salmon, Chinook Salmon, Pink Salmon, Chum Salmon, Sockeye Salmon - Immature / Sea of Okhotsk, Eastern Kamchatka to Chuchuki Peninsula / Inshore, Open Ocean / Pattern, Route, Seasonal Timing / Capture

147

Birman, I.B. 1981.
Ocean migration and origin of seasonal races of anadromous salmon (Salmonidae). -- J. Ichthyol. 21(1):35-47.

Pink Salmon, Chum Salmon - Immature, Mature / Sea of Okhotsk, Sea of Japan, Bering Sea, Western Pacific Ocean / Inshore, Open Ocean, River / Seasonal Timing - Evolution / Route

148

Birman, I.B., and S.M. Konovalov. 1968.
Distribution and migration at sea of the local stock from Kurile Lake of red salmon Oncorhynchus nerka (Walbaum). -- Probl. Ichthyol. 8(4):581-587.

Sockeye Salmon - Immature, Adult / Sea of Okhotsk / Inshore, Open Ocean / Route - Genetic Aspects / Seasonal Timing / Stock Identification - Parasite Tags, Scale Analysis

149

Birman, I.B., and S.M. Konovalov. 1968.
Distribution and migration in the ocean of a local stock of sockeye salmon, Oncorhynchus nerka (Walbaum), of Kurile Lake origin. -- Vopr. Ikhtiol. 8(4):728-736 (Fish. Res. Board Can. Trasl. Ser. No. 1219).

Sockeye Salmon - Mature, Immature / Eastern Kamchatka to Chuchuki Peninsula, Bering Sea, Western Pacific Ocean / Open Ocean, Inshore / Horizontal Distribution (Geographic) - Age / Route / Stock Identification - Parasite Tags, Scale Analysis / Capture

150

Birtwell, I.K. 1978.
Studies on the relationship between juvenile chinook salmon and water quality in the industrialized estuary of the Somass River. Pp. 58-78 in B.G. Shepherd and R.M.J. Ginetz (ed.). Proceedings of the 1977 Northeast Pacific Chinook and Coho Salmon Workshop. -- Fish. Mar. Serv. (Can.) Tech. Rep. 759.

Chinook Salmon - Immature / Southern British Columbia / Estuary / Non Migratory Movements / Pattern - Pollutants / Vertical Distribution - Dissolved Gas Concentration / Preference - Pollutants

151

Bishai, H.M. 1962.
Reactions of larval and young salmonids to water of low oxygen concentration. -- J. Cons. Cons. Int. Explor. Mer 27:167-180.

Atlantic Salmon - Alevin, Fry / Preference - Dissolved Gas Concentration / Laboratory Study

152

Bitners, I., and D.R. Idler. 1960.
Biochemical studies on sockeye salmon during spawning migration: 9. Fat, protein and water in the major internal organs and cholesterol in the liver and gonads of the standard fish. -- J. Fish. Res. Board Can. 17(1):113-122.

Sockeye Salmon - Mature / Inshore, River, Tributary / Southern British Columbia / Digestive System, Organ Systems (General) - Physiological and Biochemical Aspects (Stage of Migration) / Energetics, Freshwater Adaptation / Laboratory Study

153

Bjerknes, V., and A. Vaag. 1981.
Migrations and catch statistics of the pink salmon, *Oncorhynchus gorbuscha*, in the Finnmark area, northern Norway. -- *J. Ichthyol.* 21(1):48-53.

Pink Salmon - Adult / Iceland and Northern Europe / Inshore / Route

154

Bjerknes, V., and A.B. Vaag. 1980.
Migration and capture of pink salmon, *Oncorhynchus gorbuscha* Walbaum in Finnmark, north Norway. -- *J. Fish Biol.* 16(3):291-297.

Pink Salmon - Mature / Iceland and Northern Europe / Inshore / Seasonal Timing, Route, Direction / Capture

155

Bjornn, T.C. 1971.
Trout and salmon movements in two Idaho streams related to temperature, food, stream flow, cover and population density. -- Trans. Am. Fish. Soc. 100(3):423-438.

Chinook Salmon, Steelhead Trout - Fry, Fingerling, Smolt / Tributary, River / Non Migratory Movements, Initiation of Downstream Migration, Seasonal Timing - Water Temperature, Water Level and Flow Rate, Food Availability, Population Density, Photoperiod, Size and Growth, Influences (Miscellaneous) / Count

156

Bjornn, T.C. 1982.
Smolt seaward migration - How much for satisfactory homing of adults. Pp.265 *in* E.L. Brannon and E.O. Salo (ed.). Proceedings of the Salmon and Trout Migratory Behavior Symposium. -- School of Fisheries, University of Washington, Seattle, Washington.

Steelhead Trout, Pacific Salmon (General) / Imprinting and Learning, Homing

157

Bjornn, T.C., D.R. Craddock, and D.R. Corley. 1968.
Migration and survival of Redfish Lake, Idaho, sockeye salmon, *Oncorhynchus nerka*. -- Trans. Am. Fish. Soc. 97(4):360-373.

Sockeye Salmon - Juvenile / Colorado, Idaho / Lake / Seasonal Timing - Water Temperature, Water Level and Flow Rate / Initiation of Downstream Migration - Photoperiod / Diel Timing

158

Black, E.C. 1958.
Energy stores and metabolism in relation to muscular activity in fishes. Pp.51-67 *in* P.A. Larkin (ed.). The investigation of fish-power problems. H.R. MacMillan Lectures in Fisheries, 1957. -- Institute of Fisheries, University of British Columbia, Vancouver, British Columbia.

Salmon (General) - Mature / River / Energetics

159

Black, V.S. 1951.
Changes in body chloride, density, and water content of chum (*Oncorhynchus keta*) and coho (*O. kisutch*) salmon fry when transferred from fresh water to sea water. -- J. Fish. Res. Board. Can. 8(3):164-177.

Chum Salmon, Coho Salmon - Fry / Osmoregulatory and Excretory System, Seawater Adaptation - Physiological and Biochemical Aspects / Laboratory Study

160

Blackett, R.F. 1979.
Establishment of sockeye (*Oncorhynchus nerka*) and chinook (*O. tshawytscha*) salmon runs at Frazer Lake, Kodiak Island, Alaska. -- J. Fish. Res. Board Can. 36(10):1265-1277.

Sockeye Salmon - Smolt, Mature / Central Alaska / Lake, River / Seasonal Timing / Count

161

Blair, A.A. 1956.
Atlantic salmon tagged in east coast Newfoundland waters at Bonavista. -- J. Fish. Res. Board Can. 13(2):219-232.

Atlantic Salmon - Adult / Atlantic Canada and United States / Inshore / Route, Speed of Migration / Tagging

162

Blair, A.A. 1957.
Salmon tagging at Francis Harbor Bight, Labrador. -- J. Fish. Res. Board Can. 14(2):141-144.

Atlantic Salmon - Adult / Atlantic Canada and United States / Inshore / Route / Tagging

163

Bocharov, G.D. 1964.
Some data on the adaptability to sea water of pink and chum salmon fry. -- Tr. Murmansk. Morsk. Biol. Inst. 5(9):154-160.

In Russian; Not seen. / Pink Salmon, Chum Salmon - Fry / Seawater Adaptation

164

Bodznick, D. 1978.
Calcium ion-odorant for natural water discriminations and migratory behavior of sockeye salmon. -- J. Comp. Physiol. A 127(2):157-166.

Sockeye Salmon / Olfactory System - Physiological and Biochemical Aspects / Direction Finding (General) - Odours / Laboratory Study

165

Bodznick, D. 1978.
Characterization of olfactory bulb units of sockeye salmon with behaviorally relevant stimuli. -- J. Comp. Physiol. A 127(2):147-155.

Sockeye Salmon - Juvenile / Olfactory System - Physiological and Biochemical Aspects / Direction Finding (General) - Odours / Laboratory Study

166

Bodznick, D. 1978.
Water source preference and lakeward migration of sockeye salmon fry (Oncorhynchus nerka). -- J. Comp. Physiol. A 127(2):139-146.

Sockeye Salmon - Fry / Lake, Tributary / Direction Finding (General) - Odours, Influences (Miscellaneous) / Direction / Taxis - Current / Occlusion, Laboratory Study

167

Bodznick, D.A. 1977.
The physiology of olfaction in sockeye salmon (Oncorhynchus nerka) and its relationship to migratory behavior. -- Ph.D. thesis. -- University of Washington, Seattle, Washington. -- 153p.

Sockeye Salmon - Mature, Fry / Olfactory System - Physiological and Biochemical Aspects / Direction Finding (General) - Odours

168

Boeuf, G., and Y. Harache. 1982.
Criteria for adaptation of salmonids to high salinity seawater in France. -- Aquaculture 28(1/2):163-176.

Coho Salmon, Steelhead Trout - Juvenile / Osmoregulatory and Excretory System, Seawater Adaptation - Physiological and Biochemical Aspects

169

Boeuf, G., P. Lasserre, and Y. Harache. 1978.
Osmotic adaptation of Oncorhynchus kisutch Walbaum: II. Plasma osmotic and ionic variations, and gill Na+-K+ ATPase activity of yearling coho salmon transferred to sea water. -- Aquaculture 15(1):35-52.

Coho Salmon - Fingerling / Seawater Adaptation, Osmoregulatory and Excretory System - Physiological and Biochemical Aspects (Time of Year) / Laboratory Study

170

Bohn, B.R., and H.E. Jensen. 1971.
Investigation of scale patterns as a means of identifying races of spring chinook salmon in the Columbia River. -- Res. Rep. Fish Comm. Oreg. 3:28-36.

Chinook Salmon / Oregon / Stock Identification - Scale Analysis

171

Bolton, L.L. 1928.
Sockeye tagging on the Fraser River, 1928. -- Bull. Biol. Board Can. 16:8p.

Sockeye Salmon - Mature / Southern British Columbia / River / Reverse Migration, Speed of Migration, Route, Pattern / Tagging

172

Borgeson, D.P. (ed.). 1970.
Coho salmon status report, 1967-1968. -- Michigan Dept. Nat. Resour. Fish. Div. Manage. Rep. 3:31p.

Coho Salmon - Mature / Great Lakes / River / Seasonal Timing, Straying

173

Braemer, W. 1960.
A critical review of the sun-azimuth hypothesis. - Cold Spring Harbor Symp. Quant. Biol. 25:413-427.

Salmon (General) / Orientation - Celestial Cues

174

Brannon, E., C. Feldmann, and L. Donaldson. 1982.
University of Washington zero-age coho salmon smolt production. -- Aquaculture 28(1/2):195-200.

Coho Salmon - Smolt / Smoltification, Initiation of Downstream Migration - Size and Growth

175

Brannon, E.L. 1972.
Mechanisms controlling migration of sockeye salmon fry. -- Int. Pac. Salmon Fish. Comm. Bull. 21:86p.

Sockeye Salmon - Alevin, Fry / Southern British Columbia / River, Tributary, Lake / Direction - Genetic Aspects / Initiation of Upstream Migration - Water Level and Flow Rate / Direction Finding (General) - Odours / Taxis - Current (Age, Size and Growth, Water Temperature) / Voluntary Displacement, Diel Timing, Pattern, Behaviour, Imprinting and Learning / Olfactory System - Morphological Aspects / Orientation - Celestial Cues

176

Brannon, E.L. 1972.
Mechanisms controlling migration of sockeye salmon fry. -- Ph.D. thesis. -- University of Washington, Seattle, Washington. -- 170p.

Sockeye Salmon - Fry / Southern British Columbia / Tributary / Migration (General) - Genetic Aspects / Direction Finding (General) - Odours, Light Intensity / Taxis - Current

177

Brannon, E.L. 1982.
Orientation mechanisms of homing salmonids. Pp.219-227 in E.L. Brannon and E.O. Salo (ed.). Proceedings of the Salmon and Trout Migratory Behavior Symposium. -- School of Fisheries, University of Washington, Seattle, Washington.

Salmon (General) - Mature / River, Inshore, Open Ocean / Direction Finding (General)

178

Brannon, E.L., T.P. Quinn, G.L. Lucchetti, and B.D. Ross. 1981.
Compass orientation of sockeye salmon fry from a complex river system. -- Can. J. Zool. 59:1548-1553.

Sockeye Salmon - Fry / Southern British Columbia / Lake, Tributary / Orientation - Celestial Cues, Magnetic Field / Direction Finding (General) - Odours / Laboratory Study

179

Brauer, E.P. 1982.
The photoperiod control of coho salmon smoltification. -- Aquaculture 28(1/2):105-111.

Coho Salmon - Smolt / Smoltification - Photoperiod, Size and Growth

180

Brawn, V.M. 1982.
Behavior of Atlantic salmon (Salmo salar) during suspended migration in an estuary, Sheet Harbor, Nova Scotia, observed visually and by ultrasonic tracking. -- Can. J. Fish. Aquat. Sci. 39(2):248-256.

Atlantic Salmon - Mature / Atlantic Canada and United States / Estuary, River / Initiation of Stream Entry, Pattern - Tide / Vertical Distribution, Speed of Migration, Schooling / Sonic or Radio Tracking

181

Brett, J.R. 1952.
Temperature tolerance in young Pacific salmon, genus Oncorhynchus. -- J. Fish. Res. Board Can. 9(6):265-323.

Pacific Salmon (General) - Juvenile / Migration (General) - Water Temperature

182

Brett, J.R. 1955.
Some observations on the movement of Pacific salmon fry through a small impounded water basin. -- J. Fish. Res. Board. Can. 12(3):362-368.

Pink Salmon, Chum Salmon - Fry / Southern British Columbia / Reservoir or Impoundment / Direction Finding (General) / Speed of Migration - Reservoirs and Impoundments

183

Brett, J.R. 1957.
Salmon research and hydroelectric power development. -- Bull. Fish. Res. Board Can. 114:26p.

Salmon (General) / Migration (General) - Obstruction, Reservoirs and Impoundments

184

Brett, J.R. 1962.
Some considerations in the study of respiratory metabolism in fish, particularly salmon. -- J. Fish. Res. Board Can. 19(6):1025-1038.

Salmon (General) / Energetics / Respiratory System - Physiological and Biochemical Aspects

185

Brett, J.R. 1971.
Energetic responses of salmon to temperature: a study of some thermal relations in the physiology and freshwater ecology of sockeye salmon (Oncorhynchus nerka). -- Am. Zool. 11(1):99-113.

Sockeye Salmon - Juvenile / Northern British Columbia / Lake / Vertical Distribution - Time of Day, Food Availability, Water Temperature / Vertical Movement, Energetics

186

Brett, J.R., and D.F. Alderdice. 1958.
Research on guiding young salmon at two British Columbia field stations. -- Bull. Fish. Res. Board Can. 117:75p.

Pacific Salmon (General) - Juvenile / Guiding

187

Brett, J.R., and M.A. Ali. 1958.
Some observations on the structure and photomechanical responses of the Pacific salmon retina. -- J. Fish. Res. Board Can. 15(5):815-829.

Pink Salmon, Chum Salmon, Sockeye Salmon, Coho Salmon - Juvenile / Diel Timing - Visual System (Physiological and Biochemical Aspects) / Laboratory Study

188

Brett, J.R., and C. Groot. 1963.
Some aspects of olfactory and visual responses in Pacific salmon. -- J. Fish. Res. Board Can. 20(2):287-303.

Pacific Salmon (General) - Juvenile, Mature / Sockeye Salmon - Juvenile / Lake / Olfactory System - Physiological and Biochemical Aspects / Direction Finding (General) - Odours / Guiding / Visual System - Physiological and Biochemical Aspects / Orientation - Celestial Cues

189

Brett, J.R., M. Hollands, and D.F. Alderdice. 1958.
The effect of temperature on the cruising speed of young sockeye and coho salmon. -- J. Fish. Res. Board Can. 15(4):587-605.

Sockeye Salmon, Coho Salmon - Juvenile / Locomotory System - Water Temperature

190

Brett, J.R., and D. MacKinnon. 1953.
Preliminary experiments using lights and bubbles to deflect migrating young spring salmon. -- J. Fish. Res. Board Can. 10(8):548-559.

Chinook Salmon - Juvenile / Guiding

191

Brett, J.R., and D. MacKinnon. 1954.
Some aspects of olfactory perception in migrating adult coho and spring salmon. -- J. Fish. Res. Board Can. 11(3):310-318.

Coho Salmon, Chinook Salmon - Mature / Olfactory System - Dissolved Gas Concentration / Pattern, Preference - Behaviour / Diel Timing

192

Briggs, J.C. 1955.
Behavior pattern in migratory fishes. -- Science 122:240.

Salmon (General) - Mature / River / Route - Time of Year

193

Brown, M.W. 1938.
The salmon migration in the Shasta River (1930-1934). -- Calif. Fish Game 24(1):61-65.

Chinook Salmon - Mature / California / River / Seasonal Timing, Diel Timing / Initiation of Upstream Migration - Turbidity, Water Level and Flow Rate / Count

194

Buck, R.J.G., and A.F. Youngson. 1982.
The downstream migration of precociously mature Atlantic salmon, Salmo salar L. parr in autumn: its relation to the spawning migration of mature adult fish. -- J. Fish Biol. 20(3):279-288.

Atlantic Salmon - Fingerling / Southern Europe / River / Initiation of Downstream Migration / Migration (General)

195

Buckman, M., and R.D. Ewing. 1982.
Relationship between size and time of entry into the sea and gill (Na+K)-ATPase activity for juvenile spring chinook salmon. -- Trans. Am. Fish. Soc. 111(6):681-687.

Chinook Salmon - Juvenile / Oregon / River, Estuary / Osmoregulatory and Excretory System - Physiological and Biochemical Aspects (Time of Year) / Seawater Adaptation

196

Buklis, L.S. 1981.
Yukon and Tanana River fall chum salmon tagging, 1976-1980. -- Alaska Dep. Fish Game Inf. Leafl. 194:40p.

Chum Salmon - Mature / Western Alaska / Pattern / Route, Seasonal Timing - Genetic Aspects / Tagging

197

Buklis, L.S. 1982.
Anvik River summer chum salmon stock biology. -- Alaska Dep. Fish Game Inf. Leafl. 204:50p.

Chum Salmon - Mature / Western Alaska / River / Seasonal Timing / Hydroacoustics

198

Bull, H.O. 1931.
The smolt descent on the river Tyne, 1931. -- Rep. Dove Mar. Lab. 20:32-42.

Atlantic Salmon - Smolt / Southern Europe / River / Initiation of Downstream Migration, Seasonal Timing - Water Level and Flow Rate, Weather / Count

199

Bull, H.O. 1931.
The smolt descent on the River Tyne: a behaviour study. -- Rep. Dove Mar. Lab. 19:37-65.

Atlantic Salmon - Smolt / Southern Europe / River / Seasonal Timing, Initiation of Downstream Migration - Water Level and Flow Rate, Weather

200

Bund, J.W.W. 1902.
The migration of the salmon as affected by the changed condition of the River Severn. -- Verh. Int. Zool. Congr. 5:986-989.

Not seen.

Atlantic Salmon / Southern Europe

201

Bund, W. 1905.
Salmon migration. -- C. R. Congr. Int. Zool. 6:698-702.

Not seen.

Atlantic Salmon / Migration (General)

202

Burck, W.A. 1965.
Occurrence of juvenile chinook salmon in stomachs of spent adult chinook salmon. -- Res. Briefs Fish Comm. Oreg. 11(1):51.

Chinook Salmon - Mature / River / Behavioural aspect

203

Burck, W.A., and I.W. Jones. 1963.
Summer steelhead tagging experiments at McNary Dam in 1955 and 1956. -- Res. Briefs Fish Comm. Oreg. 9(1):42-51.

Steelhead Trout - Mature / Oregon / River, Artificial Obstruction / Seasonal Timing / Speed of Migration - Time of Year / Tagging, Count

204

Burger, C. 1981.
Radio tracking of adult salmon in the Kenai River, Alaska. -- Proc. Alaska Sci. Conf. 32:91-92.

Chinook Salmon - Mature / Central Alaska / River, Tributary / Route - Time of Year / Speed of Migration, Diel Timing / Sonic or Radio Tracking

205

Burgner, R.L. 1962.
Sampling red salmon fry by lake trap in the Wood River Lakes, Alaska. Pp.319-348 in T.S.Y. Koo (ed.). Studies of Alaska red salmon. -- Univ. Wash. Publ. Fish. New Ser. 1.

Sockeye Salmon - Fry / Western Alaska / Lake, Tributary / Pattern - Time of Year / Capture / Seasonal Timing

206

Burgner, R.L. 1962.
Studies of red salmon smolts from the Wood River Lakes, Alaska. Pp.247-298 in T.S.Y. Koo (ed.). Studies of Alaska red salmon. -- Univ. Wash. Publ. Fish. New Ser. 1.

Sockeye Salmon - Smolt / Western Alaska / River, Lake / Diel Timing - Size and Growth / Speed of Migration, Behaviour / Seasonal Timing, Initiation of Downstream Migration - Water Temperature, Influences (Miscellaneous) / Termination of Migration - Water Temperature / Count, Marking

207

Burgner, R.L. 1980.
Some features of ocean migrations and timing of Pacific salmon. Pp.153-164 in W.J. McNeil and D.C. Himsworth (ed.). Salmonid ecosystems of the North Pacific. -- Oregon State University Press, Corvallis, Oregon.

Pacific Salmon (General) - Mature / Pacific Ocean (General) / Open Ocean, Inshore / Seasonal Timing - Water Temperature / Route, Horizontal Distribution (Geographic), Direction Finding (General)

208

Burgner, R.L., and J.M. Green. 1963.
Study of interlake migration of red salmon fry, Agulowak River. -- Univ. Wash. Fish. Res. Inst. Circ. 182:13p.

Sockeye Salmon - Fry / Western Alaska / River, Lake / Pattern

209

Burkov, V.A. 1960
The hydrology of the Komandorsky - Kamchatka region and the salmon migrations during the spring and summer. -- Tr. Soveshch. Ikhtiol. Kom. Akad. Nauk. SSSR. 10:165-172 (Fish. Res. Board Can. Transl. Ser. 356).

Pacific Salmon (General) / Eastern Kamchatka to Chuchuki Peninsula, Western Pacific Ocean / Open Ocean / Horizontal Distribution (Geographic) - Water Temperature, Food Availability

210

Burner, C.J., and H.L. Moore. 1953.
Attempts to guide small fish with underwater sound. -- U.S. Fish Wildl. Serv. Spec. Sci. Rep. Fish. 111:38p.

Chinook Salmon - Juvenile / Guiding

211

Burner, C.J., and H.L. Moore. 1962.
Attempts to guide small fish with underwater sound. -- U.S. Fish Wildl. Serv. Spec. Sci. Rep. Fish. 403:30p.

Salmon (General) - Juvenile / Guiding

212

Burrows, R.E. 1957.
Diversion of adult salmon by an electric field. -- U.S. Fish Wildl. Serv. Spec. Sci. Rep. Fish. 246:11p.

Sockeye Salmon, Chinook Salmon - Mature / Guiding

213

Burrows, R.E. 1961.
Normal behavior of chinook salmon fingerlings. -- Prog. Fish Cult. 23(1):7.

Chinook Salmon - Fingerling / Behaviour - Current / Laboratory Study

214

Byers, R.D. 1942.
Salmon caught in Mexican waters. -- Calif. Fish Game 28(4):217.

Coho Salmon - Adult / Mexico / Inshore / Horizontal Distribution (Geographic)

215

Byrne, J.E. 1969.
The effects of photoperiod and temperature on the daily pattern of locomotor activity in juvenile sockeye salmon, Oncorhynchus nerka (Walbaum). -- Ph.D. thesis. -- University of British Columbia, Vancouver, British Columbia.

Sockeye Salmon - Juvenile / Pineal System - Behaviour / Behaviour - Time of Day (Photoperiod, Water Temperature, Light Intensity)

216

Byrne, J.E. 1971.
Photoperiodic activity changes in juvenile sockeye salmon (Oncorhynchus nerka). -- Can. J. Zool. 49:1155-1158.

Sockeye Salmon - Alevin, Fry / Taxis - Light Intensity, Current / Behaviour - Time of Day, Time of Year, Photoperiod / Voluntary Displacement / Laboratory Study

217

Calaprice, J.R. 1971.
X-ray spectrometric and multivariate analysis of sockeye salmon (Oncorhynchus nerka) from different geographic regions. -- J. Fish. Res. Board Can. 28(3):369-377.

Sockeye Salmon / Stock Identification - Biogeochemical Analysis

218

Calaprice, J.R., L.A. Lapi, and L.J. Carlsen. 1975.
Stock identification using X-ray spectrometry and multivariate techniques. -- Int. North Pac. Fish. Comm. Bull. 32:81-101.

Pacific Salmon (General) / Stock Identification - Biogeochemical Analysis

219

Calaprice, J.R., H.M. McSheffrey, and H. Godfrey. 1972.
X-ray spectrometric analysis and discrimination of coho salmon smolts from Pacific Northwest streams. -- Fish. Res. Board Can. Manuscr. Rep. Ser. 1198:33p.

Coho Salmon / Southern British Columbia, Washington / Stock Identification - Biogeochemical Analysis

220

Calder, A.E. 1941.
Report on tagging of marked salmon in the Margaree area, August 12, 1941. (Atlantic salmon and trout investigations, 1941. Vol.23). -- Fish. Res. Board Can. Manuscr. Rep. Biol. Stn. 213(8):8p.

Atlantic Salmon - Mature / Atlantic Canada and United States / Inshore / Tagging

221

Calderwood, W.L. 1902.
A contribution to the life-history of the salmon as observed by means of marking adult fish. -- Ann. Rep. Fish. Board Scotl. Part 2: Rep. Salmon Fish. 20(1901):55-100.

Atlantic Salmon - Adult / Southern Europe / Inshore, River / Route, Pattern / Tagging

222

Calderwood, W.L. 1906.
Autumn migration of smolts in Scotland. -- Ann. Rep. Fish. Board Scotl. Part 2: Rep. Salmon Fish. 24(1905):70-74.

Atlantic Salmon - Smolt / Southern Europe / River / Seasonal Timing

223

Calderwood, W.L. 1911.
Results of salmon marking, seventh paper. -- Fish. Board Scotl. Salmon Fish. 1910(1):11-16.

Atlantic Salmon - Kelt / Southern Europe / River, Inshore / Route / Marking

224

Calderwood, W.L. 1912.
Results of salmon marking, eighth paper. -- Fish. Board Scotl. Salmon Fish. 1911(2):3-8.

Atlantic Salmon - Kelt / Southern Europe / River, Inshore / Route / Marking

225

Calderwood, W.L. 1914.
Results of salmon marking in rivers, ninth paper. -- Fish. Board Scotl. Salmon Fish. 1913(2):14-20.

Atlantic Salmon - Kelt / Southern Europe / River, Inshore / Route / Marking

226

Calderwood, W.L. 1914.
Salmon research in 1913, sea netting results. -- Fish. Board Scotl. Salmon Fish. 1913(1):3-13.

Atlantic Salmon - Mature, Adult / Southern Europe / Inshore / Route, Speed of Migration / Marking

227

Calderwood, W.L. 1914.
Salmon research in 1914, sea netting results, second paper. -- Fish. Board Scotl. Salmon Fish. 1914(3):3-20.

Atlantic Salmon - Adult / Southern Europe / Inshore / Route, Speed of Migration / Marking

228

Calderwood, W.L. 1916.
Salmon research in 1915, sea netting results, third paper. -- Fish. Board Scotl. Salmon Fish. 1915(1):2-12.

Atlantic Salmon - Adult / Southern Europe / Inshore / Route, Speed of Migration / Marking

229

Calderwood, W.L. 1922.
The homing of the salmon. -- Scott. Nat. 1922:37-43.

Atlantic Salmon / Homing

230

Calderwood, W.L. 1923.
Results of salmon and sea trout marking in sea and river. -- Fish. Board Scotl. Salmon Fish. 1922(1):1-20.

Atlantic Salmon - Kelt / Southern Europe / River, Inshore / Route / Marking

231

Calderwood, W.L. 1934.
Is the seasonal habit of the salmon hereditary? -- Salmon Trout Mag. 76:227-233.

Salmon (General) - Mature / River / Seasonal Timing - Genetic Aspects

232

Calderwood, W.L. 1937.
Homing instinct in salmon. -- Salmon Trout Mag. 88:207-213.

Salmon (General) / Homing

233

Calderwood, W.L. 1940.
Thirty years of salmon marking: a survey of salmon marking and scale reading since the inception of the magazine. -- Salmon Trout Mag. 100:196-207.

Atlantic Salmon / Tagging

234

Carey, W.E., and D.L.G. Noakes. 1981.
Development of photobehavioral responses in young rainbow trout, Salmo gairdneri Richardson. -- J. Fish Biol. 19(3):285-296.

Steelhead Trout - Alevin / Taxis, Vertical Movement - Light Intensity / Laboratory Study

235

Carlin, B. 1955.
Tagging of salmon smolts in the River Lagan. -- Rep. Inst. Freshwater Res. Drottningholm 36:57-74.

Atlantic Salmon - Immature, Mature / Iceland and Northern Europe / Inshore / Route, Homing, Direction Finding (General) / Tagging

236

Carlin, B. 1955.
Tagging of salmon smolts in the River Lagan. -- Laxforskningsinstitutet Medd. Swed. Salmon Res. Inst. Rep. 5/1955.

Atlantic Salmon - Immature, Mature / Iceland and Northern Europe / Inshore / Route / Tagging

237

Carlin, B. 1959.
Results of salmon smolt tagging in the Baltic area. -- Rapp. P.-V. Reun. Cons. Int. Explor. Mer 147:89-96.

Atlantic Salmon - Immature, Mature / Iceland and Northern Europe / Inshore / Route, Seasonal Timing / Tagging

238

Carlin, B. 1962.
Märkt lax aterfangad vid Grönland. -- Laxforskningsinstitutet Medd. Swed. Salmon Res. Inst. Rep. 8/1962:5p.

Atlantic Salmon - Adult / Iceland and Northern Europe, Greenland / Route / Tagging

239

Carlin, B. 1962.
The stock of Baltic salmon and the Swedish tagging experiments. -- Laxforskningsinstitutet Medd. Swed. Salmon Res. Inst. Rep. 5/1962:27p. (Univ. Wash. Fish. Res. Inst. Cir. 213:27p.).

Atlantic Salmon - Immature / Iceland and Northern Europe / Inshore / Route, Horizontal Distribution (Geographic) / Tagging

240

Carlin, B. 1965.
Salmon tagging experiments. In Arsberättlese för Ar 1964. -- Laxforskningsinstitutet Medd. Swed. Salmon Res. Inst. Rep. 1/1965. (Fish. Res. Board Can. Transl. Ser. 951).

Atlantic Salmon - Mature / Iceland and Northern Europe / Inshore / Route, Homing / Tagging

241

Carlin, B. 1969.
Salmon tagging experiments. -- Laxforskningsinstitutet Medd. Swed. Salmon Res. Inst. Rep. 3/1969:8-13.

Atlantic Salmon / Iceland and Northern Europe / Inshore / Tagging

242

Carlin, B. 1969.
The migration of salmon. -- Laxforskningsinstitutet Medd. Swed. Salmon Res. Inst. Rep. 4/1969:14-22.

Atlantic Salmon - Immature, Mature / Iceland and Northern Europe, Southern Europe, Greenland / Route, Homing / Tagging

243

Carlin, B., and H. Lundin. 1967.
The size and position of the salmon caught in drift nets in the Baltic. -- Laxforskningsinstitutet Medd. Swed. Salmon Res. Inst. Rep. 14/1967:2p.

Atlantic Salmon - Immature, Adult / Iceland and Northern Europe / Inshore / Vertical Distribution - Size and Growth, Weather / Capture

244

Carney, R.E., and R.J. Adkins. 1955.
Reactions of young silver salmon in ten velocity combinations. -- Univ. Wash. Sch. Fish. Tech. Rep. 23:15p.

Coho Salmon - Juvenile / Preference - Current / Laboratory Study

245

Carpenter, S.J., and H.L. Heyl. 1974.
Fine structure of Corpuscles of Stannius of Atlantic salmon during freshwater spawning journey. -- Gen. Comp. Endocrinol. 23:212-223.

Atlantic Salmon - Mature / River / Interrenal System, Osmoregulatory and Excretory System - Morphological Aspects (Stage of Migration) / Freshwater Adaptation / Laboratory Study

246

Cederholm, C.J., and W.J. Scarlett. 1982.
Seasonal immigrations of juvenile salmonids into four small tributaries of the Clearwater River, Washington, 1977-1981. Pp.98-110 in E.L. Brannon and E.O. Salo (ed.). Proceedings of the Salmon and Trout Migratory Behavior Symposium. -- School of Fisheries, University of Washington, Seattle, Washington.

Steelhead Trout, Coho Salmon - Fingerling / Washington / River, Tributary / Non Migratory Movements

247

Chadwick, E.M.P. 1981.
Biological characteristics of Atlantic salmon smolts in Western Arm Brook, Newfoundland. -- Can. Tech. Rep. Fish. Aquat. Sci. 1024:43p.

Atlantic Salmon - Smolt / Atlantic Canada and United States / River / Initiation of Downstream Migration, Seasonal Timing - Water Temperature

248

Chang, V.M., and D.R. Idler. 1960.
Biochemical studies on sockeye salmon during spawning migration: XII. Liver glycogen. -- Can. J. Biochem. Physiol. 38:553-558.

Sockeye Salmon - Mature / Inshore, River, Tributary / Energetics, Freshwater Adaptation / Organ Systems (General) - Physiological and Biochemical Aspects (Stage of Migration) / Laboratory Study

249

Chang, V.M., H. Tsuyuki, and D.R. Idler. 1960.
Biochemical studies on sockeye salmon during spawning migration: XIII. The distribution of phosporus compounds, creatine and inositol in the major tissues. -- J. Fish. Res. Board Can. 17(4):565-582.

Sockeye Salmon - Mature / Inshore, River, Tributary / Organ Systems (General) - Physiological and Biochemical Aspects (Stage of Migration) / Freshwater Adaptation / Laboratory Study

250

Chapman, D.W. 1962.
Aggressive behavior in juvenile coho salmon as a cause of emigration. -- J. Fish. Res. Board Can. 19(6):1047-1080.

Coho Salmon - Fry / Oregon / Tributary / Initiation of Downstream Migration - Aggressive Behaviour and Territoriality, Population Density / Voluntary Displacement, Behaviour

251

Chapman, D.W., H.J. Campbell, and J.D. Fortune. 1967.
Summer distribution and food of kokanee and trout in Elk Lake, Oregon. -- Trans. Am. Fish. Soc. 96(3):308-312.

Sockeye Salmon - Adult, Landlocked / Oregon / Lake / Vertical Distribution / Capture

252

Chapman, W.M. 1941.
Observations on the migration of salmonoid fishes in the upper Columbia River. -- Copeia 1941:240-242.

Chinook Salmon, Sockeye Salmon, Steelhead Trout - Mature / Washington / River / Initiation of Stream Entry, Homing, Diel Timing - Water Temperature, Diel Timing

253

Chartier-Baraduc, M.M. 1959.
Etude des échanges de l'ion chlore avec le milieu chez le jeune saumon (Salmo salar) sédentaire et migrateur. -- C. R. Séances Soc. Biol. Paris 153:44-48.

Not seen.

Atlantic Salmon - Juvenile / Osmoregulatory and Excretory System - Physiological and Biochemical Aspects (Stage of Migration)

254

Chatwin, B.M. 1953.
Tagging of chum salmon in Johnstone Strait, 1945 and 1950. -- Bull. Fish. Res. Board Can. 96:33p.

Chum Salmon - Mature / Southern British Columbia, Washington / Inshore / Route, Speed of Migration / Tagging

255

Chernitskiy, A.G., and L.A, Shterman. 1981.
Osmoregulation in smolts of Atlantic salmon, Salmo salar. -- J. Ichthyol. 21(3):63-68.

Atlantic Salmon - Smolt, Fingerling / Osmoregulatory and Excretory System, Smoltification, Seawater Adaptation - Physiological and Biochemical Aspects / Laboratory Study

256

Chidester, F.E. 1924.
A critical examination of the evidence for physical and chemical influences on fish migration. -- J. Exp. Biol. 2:79-118.

Salmon (General) - Mature / Homing, Direction Finding (General), Migration (General)

257

Chilcote, M.W., B.A. Crawford, and S.A. Leider. 1980.
A genetic comparison of sympatric populations of summer and winter steelheads. -- Trans. Am. Fish. Soc. 109(2):203-206.

Steelhead Trout - Mature / Washington / River / Seasonal Timing - Genetic Aspects / Stock Identification - Electrophoresis and Serology

258

Child, A.R., A.M. Burnell, and N.P. Wilkins. 1976.
The existence of two races of Atlantic salmon (*Salmo salar* L.) in the British Isles. -- J. Fish Biol. 8:35-43.

Atlantic Salmon / Southern Europe / Stock Identification - Electrophoresis and Serology

259

Chisholm, W.M. 1948.
Planting of young salmon above trap. (Atlantic salmon and trout investigations, 1948. Vol.39). -- Fish. Res. Board Can. Manuscr. Rep. Biol. Stn. 396(5):3p.

Atlantic Salmon - Smolt / Atlantic Canada and United States / River / Voluntary Displacement, Behaviour

260

Chisholm, W.M. 1949.
Fish (salmon) management, 1949. -- Fish. Res. Board Can. Manuscr. Rep. Biol. Stn. 400:13p.

Atlantic Salmon - Smolt / Atlantic Canada and United States / River / Seasonal Timing, Initiation of Downstream Migration - Water Level and Flow Rate, Water Temperature / Count

261

Christensen, O., and P. Larsson. 1979.
Review of Baltic salmon research. -- Int. Counc. Explor. Sea Coop. Res. Rep. Ser. A 89:124p.

Atlantic Salmon / Iceland and Northern Europe / Migration (General)

262

Church, W. 1963.
Red salmon smolts from the Wood River system - 1961. -- Alaska Dep. Fish Game Inf. Leafl. 32:3p.

Sockeye Salmon - Smolt / Western Alaska / River / Seasonal Timing, Diel Timing / Count

263

Church, W. 1963.
Red salmon smolts, Kvichak River system - 1961. -- Alaska Dep. Fish Game Inf. Leafl. 31:4p.

Sockeye Salmon - Smolt / Western Alaska / River / Seasonal Timing, Diel Timing / Count

264

Churikov, A.A. 1975.
Features of the downstream migration of young salmon of the genus Oncorhynchus from the rivers of the northeast coast of Sakhalin. -- J. Ichthyol. 15(6):963-970.

Masu Salmon, Coho Salmon, Chum Salmon - Juvenile / Sea of Okhotsk / Estuary, River / Seasonal Timing, Pattern / Capture

265

Clark, G.H., and S.R. Hatton. 1942.
Progress report on adult salmon tagging in 1939-1941. -- Calif. Fish Game 28(2):111-115.

Chinook Salmon, Coho Salmon - Adult / California / Inshore / Route / Tagging

266

Clarke, W.C., and J. Blackburn. 1977.
A seawater challenge test to measure smolting of juvenile salmon. -- Fish. Mar. Serv. (Can.) Tech. Rep. 705:11p.

Coho Salmon - Smolt, Fingerling / Seawater Adaptation, Osmoregulatory and Excretory System - Physiological and Biochemical Aspects / Smoltification - Size and Growth, Water Temperature, Photoperiod / Laboratory Study

267

Clarke, W.C., and J. Blackburn. 1978.
Seawater challenge tests performed on hatchery stocks of chinook and coho salmon in 1977. -- Fish. Mar. Serv. (Can.) Tech. Rep. 761:19p.

Chinook Salmon, Coho Salmon - Fingerling, Smolt / Seawater Adaptation / Osmoregulatory and Excretory System - Physiological and Biochemical Aspects (Size and Growth) / Smoltification / Circulatory System - Physiological and Biochemical Aspects

268

Clarke, W.C., S.W. Farmer, and K.M. Hartwell. 1977.
Effect of teleost pituitary growth hormone on growth of Tilapia mossambica and on growth and seawater adaptation of sockeye salmon (Oncorhynchus nerka). -- Gen. Comp. Endocrinol. 33(2):174-178.

Sockeye Salmon - Fingerling / Seawater Adaptation - Physiological and Biochemical Aspects, Pituitary System / Laboratory Study

269

Clarke, W.C., L. Folmar, and W. Dickhoff. 1978.
Changes in gill Na+K+ATPase, plasma sodium and thyroid hormone levels during adaptation of juvenile coho salmon to sea water. -- Am. Zool. 18(3):652.

Coho Salmon - Juvenile / Seawater Adaptation, Osmoregulatory and Excretory System - Physiological and Biochemical Aspects / Thyroid System

270

Clarke, W.C., and J.E. Shelbourn. 1977.
Effect of temperature, photoperiod and salinity on growth and smolting of under-yearling coho salmon. -- Am. Zool. 17(4):957.

Coho Salmon - Juvenile / Smoltification - Photoperiod, Water Temperature, Salinity

271

Clarke, W.C., and J.E. Shelbourn. 1980.
Optimum conditions for smolting in underyearling coho salmon. -- Am. Zool. 20(4):873.

Coho Salmon - Smolt / Smoltification - Photoperiod, Water Temperature

272

Clarke, W.C., J.E. Shelbourn, and J.R. Brett. 1978.
Growth and adaptation to sea water in "underyearling" sockeye (Oncorhynchus nerka) and coho (Oncorhynchus kisutch) salmon subjected to regimes of constant or changing temperature and day length. -- Can. J. Zool. 56:2413-2421.

Coho Salmon, Sockeye Salmon - Fingerling / Osmoregulatory and Excretory System, Seawater Adaptation - Physiological and Biochemical Aspects (Photoperiod, Water Temperature) / Smoltification - Size and Growth / Laboratory Study

273

Clarke, W.C., J.E. Shelbourn, and J.R. Brett. 1981.
Effect of artificial photoperiod cycles, temperature, and salinity on growth and smolting in underyearling coho (Oncorhynchus kisutch), chinook (O. tshawytscha), and sockeye (O. nerka) salmon. -- Aquaculture 22(1/2):105-116.

Sockeye Salmon, Coho Salmon, Chinook Salmon - Smolt / Smoltification, Osmoregulatory and Excretory System, Seawater Adaptation - Photoperiod / Laboratory Study

274

Clarke, W.C., and H.D. Smith. 1972.
Observations on the migration of sockeye salmon fry (Oncorhynchus nerka) in the lower Babine River. -- J. Fish. Res. Board Can. 29(2):151-159.

Sockeye Salmon - Fry / Northern British Columbia / River / Seasonal Timing, Diel Timing, Pattern, Behaviour / Initiation of Upstream Migration - Light Intensity / Direction Finding (General) - Landmarks

275

Cleaver, F.C. 1964.
Origins of high seas sockeye salmon. -- Fish. Bull. 63(2):445-476.

Sockeye Salmon - Immature, Mature / Eastern Pacific Ocean, Open Ocean, Western Pacific Ocean, Bering Sea, Pacific Ocean (General) / Open Ocean, River / Horizontal Distribution (Geographic), Route, Seasonal Timing - Current, Water Temperature / Vertical Distribution / Tagging / Stock Identification - Morphometrics and Meristics, Scale Analysis, Electrophoresis and Serology, Parasite Tags

276

Cleaver, F.C. 1969.
Effects of ocean fishing on 1961 - brood fall chinook salmon from Columbia River hatcheries. -- Res. Rep. Fish Comm. Oreg. 1(1):3-76.

Chinook Salmon - Mature, Immature / Washington, Southern British Columbia, Northern British Columbia, Oregon, California, Southeastern Alaska / Route / Tagging

277

Clemens, W.A. 1930.
Pacific salmon migration: the tagging of the coho salmon on the east coast of Vancouver Island in 1927 and 1928. -- Bull. Biol. Board Can. 15:19p.

Coho Salmon - Mature / Northern British Columbia, Southern British Columbia, Washington / Inshore / Route / Tagging

278

Clemens, W.A. 1930.
The problem of the conservation of the sockeye salmon in British Columbia. -- Trans. Am. Fish. Soc. 60:262-268.

Sockeye Salmon - Mature / Inshore / Route / Tagging

279

Clemens, W.A. 1932.
Pacific salmon migration: the tagging of the spring salmon on the east coast of Vancouver Island in 1927 and 1928 with notes on the incidental tagging of other fish. -- Bull. Biol. Board Can. 27:10p.

Chinook Salmon - Mature / Southern British Columbia, Washington / Inshore / Route, Speed of Migration / Tagging

280

Clemens, W.A. 1939.
Bibliography for migration of salmon in B.C. -- Fish. Res. Board Can. Manuscr. Rep. Biol. Stn. 285:2p.

Pacific Salmon (General) / Migration (General)

281

Clemens, W.A. 1951.
On the migration of Pacific salmon, -- Proc. Trans. Roy. Soc. Can. Ser. 3 45(5):9-17.

Sockeye Salmon - Immature, Mature / Southern British Columbia / Inshore / Route - Current / Migration (General)

282

Clemens, W.A. 1953.
On some fundamental problems in the biology of the Pacific salmon. -- Trans. Roy. Soc. Can. Ser. 3. 47(5):1-13.

Pacific Salmon (General) / Migration (General)

283

Clemens, W.A. 1959.
Some problems in the behavior of Pacific salmon in the ocean. -- Biol. Colloqu. 20:30-35.

Pacific Salmon (General) - Adult, Juvenile / Seawater Adaptation / Route, Horizontal Distribution (Geographic) - Water Temperature, Current / Direction Finding (General)

284

Clemens, W.A., and L.S. Clemens. 1925-1937.
Contributions to the life-history of the sockeye salmon. Papers no. 11-22. -- Rep. B.C. Commissioner Fish. 1925:K18-39, 1926:E29-57, 1927:N16-38, 1928:G19-43, 1929:J17-43, 1930:I14-41, 1931:F13-37, 1932:13-49, 1933:H12-47, 1934:K20-58, 1935:L21-44, 1936:R26-44.

Sockeye Salmon - Mature / Northern British Columbia / River / Seasonal Timing - Age

285

Clemens, W.A., R.E. Foerster, and A.L. Pritchard. 1939.
The migration of Pacific salmon in British Columbia waters. Pp.51-59 in F.R. Moulton (ed.). The migration and conservation of salmon. -- Publ. Amer. Assoc. Adv. Sci. 8.

Chinook Salmon, Sockeye Salmon, Pink Salmon - Mature / Southern British Columbia, Northern British Columbia / Inshore / Homing, Route / Tagging, Marking

286

Clemens, W.A., and H.C. Williamson. 1929.
Migrations of Pacific salmon. -- Proc. Pac. Sci. Congr. 4(3):453-458.

Chinook Salmon - Mature / Southern British Columbia, Northern British Columbia, Washington, Oregon, California / Inshore / Route / Tagging

287

Cleugh, T.R., and L.R. Russell. 1980.
Radio tracking chinook salmon to determine migration delay at Whitehorse Rapids Dam. -- Fish. Mar. Serv. (Can.) Manuscr. Rep. 1459:43p.

Chinook Salmon - Mature / Yukon / River, Artificial Obstruction / Pattern, Vertical Distribution / Speed of Migration - Obstruction / Sonic or Radio Tracking

288

Cobb, J.N. 1922.
Protecting migrating Pacific salmon. -- Trans. Am. Fish. Soc. 52:146-156.

Pacific Salmon (General) - Mature, Juvenile / River, Artificial Obstruction / Migration (General) - Obstruction

289

Coburn, A., and P. McCart. 1967.
A hatchery release tank for pink salmon fry with notes on behavior of the fry in the tank and after release. -- J. Fish. Res. Board Can. 24(1):77-85.

Pink Salmon - Fry / Northern British Columbia / Diel Timing / Initiation of Downstream Migration - Turbidity, Water Temperature

290

Coburn, A.S., and J. McDonald. 1972.
The trapping and marking of sockeye salmon fry (Oncorhynchus nerka) at Fulton River, Babine Lake, B.C., (1966-1968). -- Fish. Res. Board Can. Tech. Rep. 348:54p.

Sockeye Salmon - Fry / Northern British Columbia / Tributary / Seasonal Timing / Count

291

Coburn, A.S., and J. McDonald. 1973.
The marking of sockeye salmon fry (Oncorhynchus nerka) at Fulton River and Pinkut Creek, Babine Lake, B.C. -- Fish. Res. Board Can. Tech. Rep. 372:17p.

Sockeye Salmon - Fry / Northern British Columbia / Tributary / Seasonal Timing / Count

292

Colby, D.R., and T.S.Y. Koo. 1961.
Lake Karluk red salmon escapement enumeration, 1961. -- Univ. Wash. Fish. Res. Inst. Circ. 158:8p.

Sockeye Salmon - Mature / Central Alaska / River / Seasonal Timing, Diel Timing / Count

293

Colgrove, G.S. 1966.
Histological and hematological changes accompanying sexual maturation of sockeye salmon in the Fraser River system. -- Int. Pac. Salmon Fish. Comm. Bull. 20:28p.

Sockeye Salmon - Mature / Southern British Columbia / Inshore, River / Freshwater Adaptation / Organ Systems (General) - Morphological Aspects (Stage of Migration)

294

Collie, N.L., and H.A. Bern. 1980.
Variations in water transport across the coho salmon, Oncorhynchus kisutch, posterior intestine during smoltification. -- Am. Zool. 20(4):873.

Coho Salmon - Smolt / Smoltification - Osmoregulatory and Excretory System, (Physiological and Biochemical Aspects)

295

Collie, N.L., and H.A. Bern. 1982.
Changes in intestinal fluid transport associated with smoltification and seawater adaptation in coho salmon, Oncorhynchus kisutch (Walbaum). -- J. Fish Biol. 21(3):337-348.

Coho Salmon - Fingerling, Smolt / Osmoregulatory and Excretory System, Seawater Adaptation, Smoltification - Physiological and Biochemical Aspects

296

Collins, G.B. 1952.
Factors influencing the orientation of migrating anadromous fishes. -- Fish. Bull. Fish Wildl. Serv. 52(73):375-396.

Salmon (General) / Direction Finding (General)

297

Collins, G.B. 1954.
Research on anadromous fish passage at dams. -- Trans. North. Amer. Wildl. Conf. 19(1954):418-423.

Salmon (General) / Artificial Obstruction / Guiding

298

Collins, G.B., P.S. Trefethen, and A.B. Groves. 1962.
Orientation of homing salmon. -- Bull. Ecol. Soc. Am. 43(3):84.

Chinook Salmon - Mature / River / Direction Finding (General)

299

Collins, J.J. 1975.
Occurence of pink salmon (*Oncorhynchus gorbuscha*) in Lake Huron. -- J. Fish. Res. Board Can. 32(3):402-404.

Pink Salmon / Great Lakes / Horizontal Distribution (Geographic)

300

Congleton, J.L., S.K. Davis, and S.R. Foley. 1982.
Distribution, abundance and outmigration timing of chum and chinook salmon fry in the Skagit salt marsh. Pp.153-163 *in* E.L. Brannon and E.O. Salo (ed.). Proceedings of the Salmon and Trout Migratory Behavior Symposium. -- School of Fisheries, University of Washington, Seattle, Washington.

Chum Salmon, Chinook Salmon - Fry / Washington / Estuary / Seasonal Timing, Pattern

301

Connor, A.R., C.H. Elling, E.C. Black, G.B. Collins, J.R. Gauley, and E. Trevor-Smith. 1964.
Changes in glycogen and lactate levels in migrating salmonid fishes ascending experimental "endless" fishways. -- J. Fish. Res. Board Can. 21(2):255-290.

Sockeye Salmon, Chinook Salmon, Steelhead Trout - Mature / River, Artificial Obstruction / Energetics / Laboratory Study

302

Conte, F.P., and D.H.Y. Lin. 1967.
Kinetics of cellular morphogenesis in gill epithelium during sea water adaptation of *Oncorhynchus* (Walbaum). -- Comp. Biochem. Physiol. 23:945-957.

Chinook Salmon, Coho Salmon - Juvenile / Osmoregulatory and Excretory System, Seawater Adaptation - Physiological and Biochemical Aspects, Morphological Aspects / Laboratory Study

303

Conte, F.P., and H.H. Wagner. 1965.
Development of osmotic and ionic regulation in juvenile steelhead trout *Salmo gairdneri*. -- Comp. Biochem. Physiol. 14:603-620.

Steelhead Trout - Juvenile / Seawater Adaptation, Osmoregulatory and Excretory System - Physiological and Biochemical Aspects / Thyroid System - Physiological and Biochemical Aspects (Stage of Migration) / Laboratory Study

304

Cook, H., and A.P. Van Overbeeke. 1969.
Ultrastructure of the eta cells in the pituitary gland of adult migratory salmon (*Oncorhynchus nerka*). -- Can. J. Zool. 47:939-941.

Sockeye Salmon - Mature / Southern British Columbia / Inshore, River, Tributary / Pituitary System - Morphological Aspects (Stage of Migration) / Laboratory Study

305

Cook, R.C. 1982.
Stock identification of sockeye salmon (*Oncorhynchus nerka*) with scale pattern recognition. -- Can. J. Fish. Aquat. Sci. 39(4):611-617.

Sockeye Salmon / Eastern Kamchatka to Chuchuki Peninsula, Western Alaska / Stock Identification - Scale Analysis

306

Cook, R.C., and G.E. Lord. 1978.
Identification of stocks of Bristol Bay sockeye salmon, *Oncorhynchus nerka*, by evaluating scale patterns with a polynomial discriminant method. -- Fish. Bull. 76(2):415-423.

Sockeye Salmon / Western Alaska / Stock Identification - Scale Analysis

307

Cooper, J., T.J. Hara, and S.B. Brown. 1982.
Comment on electroencephalographic responses to morpholine and their relationship to homing [and] Reply. -- Can. J. Fish. Aquat. Sci. 39(11):1544-1548.

Salmon (General) / Olfactory System - Physiological and Biochemical Aspects / Direction Finding (General) - Odours / Imprinting and Learning

308

Cooper, J.C., and A.D. Hasler. 1972.
Electroencephalograph, EEG, and salmon homing, a continuing controversy. -- Am. Zool. 12(4):653.

Salmon (General) / Direction Finding (General) - Odours

309

Cooper, J.C., and A.D. Hasler. 1973.
An electrophysiological approach to salmon homing. (Aspects of migration and orientation in Pacific salmon II). -- Fish. Res. Board Can. Tech. Rep. 415:44p.

Pacific Salmon (General) / Olfactory System - Physiological and Biochemical Aspects / Direction Finding (General) - Odours / Homing, Imprinting and Learning, Memory

310

Cooper, J.C., and A.D. Hasler. 1974.
Electroencephalographic evidence for retention of olfactory cues in homing coho salmon. -- Science 183:336-338.

Coho Salmon - Juvenile, Adult / Olfactory System - Physiological and Biochemical Aspects / Memory, Imprinting and Learning / Laboratory Study

311

Cooper, J.C., and A.D. Hasler. 1975.
Morpholine as olfactory stimulus in fish. -- Science 187:82.

Salmon (General) / Olfactory System - Physiological and Biochemical Aspects

312

Cooper, J.C., and A.D. Hasler. 1976.
Electrophysiological studies of morpholine-imprinted coho salmon (*Oncorhynchus kisutch*) and rainbow trout (*Salmo gairdneri*). -- J. Fish. Res. Board Can. 33(4):688-694.

Coho Salmon - Juvenile, Mature / Great Lakes / Olfactory System - Physiological and Biochemical Aspects / Imprinting and Learning, Memory / Direction Finding (General) - Odours / Laboratory Study

313

Cooper, J.C., and P.J. Hirsch. 1982.
The role of chemoreception in salmonid homing. Pp.343-362 *in* T.J. Hara (ed.). Chemoreception in fishes. -- Elsevier, New York, New York.

Salmon (General) / Straying, Imprinting and Learning, Memory, Homing / Direction Finding (General) - Pheromones, Odours, Genetic Aspects / Olfactory System - Physiological and Biochemical Aspects / Taxis - Current (Odours) / Migration (General)

314

Cooper, J.C., and A.T. Scholz. 1976.
Homing of artificially imprinted steelhead (rainbow) trout, *Salmo gairdneri*. -- J. Fish. Res. Board Can. 33(4):826-829.

Steelhead Trout - Smolt, Mature / Great Lakes / Lake / Homing / Direction Finding (General) - Odours / Imprinting and Learning

315

Cooper, J.C., A.T. Scholz, R.M. Horrall, A.D. Hasler, and D.M. Madison. 1976.
Experimental confirmation of the olfactory hypothesis with homing, artificially imprinted coho salmon (*Oncorhynchus kisutch*). -- J. Fish. Res. Board Can. 33(4):703-710.

Coho Salmon - Smolt, Mature / Great Lakes / Lake / Homing, Imprinting and Learning, Memory / Direction Finding (General) - Odours / Imprinting and Learning

316

Cowey, C.B., K.W. Daisley, and G. Parry. 1962.
Study of amino acids, free or as components of protein, and of some B vitamins in the tissues of the Atlantic salmon, *Salmo salar*, during spawning migration. -- Comp. Biochem. Physiol. 7:29-38.

Atlantic Salmon - Mature / River / Organ Systems (General), Digestive System - Physiological and Biochemical Aspects (Stage of Migration) / Energetics / Laboratory Study

317

Cowey, C.B., and G. Parry. 1963.
The non-protein nitrogenous constituents of the muscle of parr and smolt stages of the Atlantic salmon *Salmo salar*. -- Comp. Biochem. Physiol. 8:47-51.

Atlantic Salmon - Fingerling, Smolt / Smoltification - Physiological and Biochemical Aspects

318

Craigie, E.H. 1926.
A preliminary experiment on the relation of the olfactory sense to the migration of the sockeye salmon (*Oncorhynchus nerka*, Walbaum). -- Trans. Roy. Soc. Can. Ser. 3 20:215-224.

Sockeye Salmon - Mature / Southern British Columbia / Inshore, Estuary / Direction Finding (General) - Odours / Tagging, Occlusion

319

Cramer, D.P. 1981.
Effect of smolt release location and displacement of adults on distribution of summer steelhead trout. -- Prog. Fish Cult. 43(1):8-11.

Steelhead Trout - Mature / Oregon / River / Homing / Tagging, Marking, Displacement

320

Cramer, F.K., and D.F. Hammack. 1952.
Salmon research at Deer Creek, California. -- U.S. Fish Wildl. Serv. Spec. Sci. Rep. Fish. 67:16p.

Chinook Salmon - Juvenile, Mature / California / Tributary / Seasonal Timing, Diel Timing, Termination of Migration - Water Temperature / Initiation of Upstream Migration - Water Level and Flow Rate, Turbidity / Count

321

Cramer, S.P., and J.A. Lichatowich. 1978.
Factors influencing the rate of downstream migration of juvenile chinook salmon in the Rogue River. Pp.43-48 in B.G. Shepherd and R.M.J. Ginetz (ed.). Proceedings of the 1977 Northeast Pacific Chinook and Coho Salmon Workshop. -- Fish. Mar. Serv. (Can.) Tech. Rep. 759.

Chinook Salmon - Smolt, Juvenile / Oregon / River / Speed of Migration - Water Level and Flow Rate, Size and Growth, Influences (Miscellaneous) / Marking

322

Creelman, V.M., and N. Tomlinson. 1959.
Biochemical studies on sockeye salmon during spawning migration: VI. Ribonucleic acid and deoxyribonucleic acid. -- J. Fish. Res. Board Can. 16(4):421-428.

Sockeye Salmon - Mature / Southern British Columbia / Inshore, River, Tributary / Organ Systems (General) - Physiological and Biochemical Aspects (Stage of Migration) / Freshwater Adaptation / Laboratory Study

323

Crichton, M.I. 1935.
Scale-absorption in salmon and sea trout. -- Fish. Board Scotl. Salmon Fish. 1935(4):8p.

Atlantic Salmon - Mature / Skeletal and Integumentary System - Morphological Aspects (Stage of Migration)

324

Croker, R.S. 1930.
Unusual fish at San Pedro, California. -- Calif. Fish Game 16(1):77.

Chinook Salmon - Adult / California / Inshore / Horizontal Distribution (Geographic)

325

Croker, R.S. 1936.
King salmon in southern California. -- Calif. Fish Game 22(4):323.

Chinook Salmon - Adult / California / Inshore / Horizontal Distribution (Geographic)

326

Crone, R.A., and C.E. Bond. 1976.
Life history of coho salmon, Oncorhynchus kisutch, in Sashin Creek, southeastern Alaska. -- Fish. Bull. 74(4):897-923.

Coho Salmon - Mature, Fry, Smolt / Southeastern Alaska, Seawater Adaptation / River, Estuary / Seasonal Timing / Count

327

Croston, C.B. 1964.
Differences among groups of salmon in the blood serum level of alkaline phosphatase. -- Trans. Am. Fish. Soc. 93(1):95-96.

Chinook Salmon - Mature / River / Circulatory System - Physiological and Biochemical Aspects (Stage of Migration) / Laboratory Study

328

Cutting, R.E. 1965.
Marine salmon migration. -- Maine Fish Game 8(1):1430.

Atlantic Salmon - Adult / Atlantic Canada and United States, Greenland / Route / Tagging

329

Cutting, R.E., and A.L. Meister. 1967.
Marine migration of Atlantic salmon kelts tagged in Maine, U.S.A. -- Int. Comm. Northwest Atl. Fish. Redbook 1967(3):58-65.

Atlantic Salmon - Kelt / Atlantic Canada and United States, Greenland / Open Ocean, Inshore / Route, Speed of Migration / Tagging

330

Dahl, K. 1936.
Salmon marking in Norway: the lessons of 1935. -- Salmon Trout Mag. 85:324-329.

Atlantic Salmon - Immature / Iceland and Northern Europe / Inshore / Route / Tagging

331

Dahl, K. 1937.
Salmon migration off Norway. -- Salmon Trout Mag. 88:229-234.

Atlantic Salmon - Immature, Mature / Iceland and Northern Europe / Inshore / Route / Tagging

332

Dahl, K. 1938.
A review of recent salmon marking experiments in Norway. -- Rapp. P.-V. Reun. Cons. Int. Explor. Mer 108(3):3-15.

Atlantic Salmon - Immature, Mature / Iceland and Northern Europe / Inshore / Route / Marking

333

Dahl, K. 1940.
Homing instinct in salmon: the case for separate river races. -- Salmon Trout Mag. 94:19-26.

Atlantic Salmon / Homing

334

Dahl, K., and S. Somme. 1936.
Experiments in salmon marking in Norway, 1935. -- Skr. Nor. Vidensk. Akad. Oslo. 1935 (12):27p.

Atlantic Salmon - Adult / Inshore / Route, Speed of Migration / Tagging

335

Dahl, K., and S. Somme. 1937.
Salmon marking in Norway, 1936. -- Skr. Nor. Vidensk. Akad. Oslo. 1937(1):37p.

Atlantic Salmon - Adult / Iceland and Northern Europe / Inshore / Route, Speed of Migration / Tagging

336

Dahl, K., and S. Somme. 1938.
Salmon markings in Norway, 1937. -- Skr. Nor. Vidensk. Akad. Oslo 1938(2):45p.

Atlantic Salmon - Adult / Iceland and Northern Europe / Inshore / Route, Speed of Migration / Tagging

337

Dahl, K., and S. Somme. 1942.
Experiments in salmon marking in Norway, 1938, 1939, and 1940. -- Skr. Nor. Vidensk. Akad. Oslo. 1941(10):52p.

Atlantic Salmon - Adult / Iceland and Northern Europe / Inshore / Route, Speed of Migration / Tagging

338

Daly, R.I. 1968.
Chasing rainbows. -- Wisc. Conserv. Bull. 33:6-7.

Steelhead Trout - Mature / Great Lakes / Tributary / Direction Finding (General) - Odours / Straying / Tagging / Laboratory Study

339

Darda, M.A. 1968.
Results of research carried out from 1961-1963 on pink salmon of pre-spawning age in the Sea of Japan. -- Izv. Tikhookean. Nauchno-Issled. Inst. Rybn. Khoz. Okeanogr. 65:80-96 (Fish. Res. Board Can. Transl. Ser. 1441).

Pink Salmon - Mature, Immature / Sea of Japan / Open Ocean, Inshore / Route, Horizontal Distribution (Geographic) - Water Temperature / Seasonal Timing / Capture

340

Daugherty, A.E. 1946.
Rare fishes taken near Los Angeles. -- Calif. Fish Game 32(3):157-158.

Chinook Salmon - Adult / California / Inshore / Horizontal Distribution (Geographic)

341

Davidson, F.A. 1934.
The homing instinct and age at maturity of pink salmon. -- Bull. Bur. Fish. (U.S.) 48(15):39p.

Pink Salmon - Mature / Southeastern Alaska / Homing, Straying / Marking

342

Davidson, F.A. 1937.
"Migration" and "homing" of Pacific salmon. -- Science 86:55-56.

Pacific Salmon (General) / Homing

343

Davidson, F.A. 1938.
The migrations of pink salmon (_Oncorhynchus gorbuscha_) in the Clarence and Sumner Straits regions of southeastern Alaska. -- Bull. Bur. Fish. (U.S.) 48(25):643-666.

Pink Salmon - Mature / Southeastern Alaska / Inshore / Route / Tagging

344

Davidson, F.A. 1940.
Age, growth, and seasonal time of migration of the Pacific salmon as an indication of environmental conditions in the sea. -- Proc. Pac. Sci. Congr. 6(3):533.

Pink Salmon - Mature / Initiation of Homing Migration, Seasonal Timing - Size and Growth

345

Davidson, F.A. 1940.
Marine ecology of Pacific salmon. -- Proc. Pac. Sci. Congr. 6(3):263-264.

Pacific Salmon (General) / Pacific Ocean (General) / Horizontal Distribution (Geographic)

346

Davidson, F.A., and S.J. Hutchinson. 1937.
The influence of natural conditions on the geographic distribution of the Pacific salmon. -- Prog. Fish Cult. 30:24-34.

Pacific Salmon (General) / Migration (General)

347

Davidson, F.A., and S.J. Hutchinson. 1938.
The geographical distribution and environmental limitations of the Pacific salmon (genus _Oncorhynchus_). -- Bull. Bur. Fish. (U.S.) 48(26):667-692.

Pacific Salmon (General) / Horizontal Distribution (Geographic) - Water Temperature

348

Davidson, F.A., and S.J. Hutchinson. 1942.
Natural reproduction of pink salmon studied at Little Port Walter, Alaska. -- Ecology 23(2):234-235.

Pink Salmon - Fry / Southeastern Alaska / River / Seasonal Timing, Diel Timing / Count

349

Davidson, F.A., and E. Vaughan. 1941.
Relation of population size to marine growth and time of spawning migration in the pink salmon (O. gorbuscha) of south-eastern Alaska. -- J. Mar. Res. 4:231-246.

Pink Salmon - Mature / Southeastern Alaska / River / Seasonal Timing - Population Density, Size and Growth

350

Davidson, F.A., E. Vaughan, S.J. Hutchinson, and A.L. Pritchard. 1943.
Factors influencing the upstream migration of the pink salmon (Oncorhynchus gorbuscha). -- Ecology 24(2):149-168.

Pink Salmon - Mature / Southern British Columbia, Southeastern Alaska / River, Estuary / Initiation of Stream Entry, Seasonal Timing - Water Level and Flow Rate / Pattern / Count

351

Davidson, V.M. 1948.
Salmon movement in a circular current of decreasing speed. (Atlantic salmon and trout investigations, 1948. Vol.39). -- Fish. Res. Board Can. Manuscr. Rep. Biol. Stn. 396(1):10p.

Atlantic Salmon - Juvenile / Preference - Current / Laboratory Study

352

Davis, S.K. 1981.
Determination of body composition, condition, and migration timing of juvenile chum and chinook salmon in the lower Skagit River, Washington. -- M.Sc. thesis. -- University of Washington, Seattle, Washington.

Chum Salmon, Chinook Salmon - Juvenile / Washington / River / Seasonal Timing / Organ Systems (General) - Physiological and Biochemical Aspects

353

Day, D.E. 1966.
Population stratification and homing behavior in juvenile coho salmon (Oncorhynchus kisutch). -- Fish. Res. Pap. Wash. Dept. Fish. 2(4):75-79.

Coho Salmon - Juvenile / Washington / Lake / Homing / Marking

354

DeLacy, A.C., S.P. Felton, and G.J. Paulik. 1956.
A study to investigate the effects of fatigue and current velocities on adult salmon and steelhead trout. -- U.S. Army Corps Eng. North Pac. Div. Fish. Eng. Res. Program Prog. Rep. 1:126-138.

Sockeye Salmon, Coho Salmon - Mature / Energetics, Speed of Migration / Locomotory System - Physiological and Biochemical Aspects / Laboratory Study

355

DeLacy, A.C., and F. Neave. 1947.
Migration of pink salmon in southern British Columbia and Washington in 1945. -- Bull. Fish. Res. Board Can. 74:11p.

Pink Salmon - Mature / Southern British Columbia, Washington / Inshore / Route, Speed of Migration / Tagging

356

Dell, M.B. 1974.
Tag returns and movements of rainbow trout (*Salmo gairdneri*) and rainbow-steelhead trout released in the Lake Washington system. -- Trans. Am. Fish. Soc. 103(2):250-254.

Steelhead Trout - Adult / Washington / Lake, Inshore / Route, Non Migratory Movements / Tagging

357

Denton E.J., and R.L. Saunders. 1972.
On the organization of silvery layers in the skin of the Atlantic salmon *Salmo salar* during smoltification and on the regeneration of these layers under abnormal lighting conditions. -- J. Mar. Biol. Assoc. U.K. 52(4):889-898.

Atlantic Salmon - Smolt / Smoltification - Morphological Aspects

358

Deville, J., and E. Lopez. 1970.
The salmon's (*Salmo salar* L.) ultimobranchial body: histophysiological study at various stages of the salmon's life cycle in fresh water streams. -- Arch. Anat. Microsc. Morph. Exp. 59(4):393-402 (Fish. Res. Board Can. Transl. Ser. 2134).

Atlantic Salmon - Fingerling, Smolt, Mature, Kelt / Ultimobranchial System - Morphological Aspects, Physiological and Biochemical Aspects (Stage of Migration)

359

Dickhoff, W.W., L.C. Folmar, and A. Gorbman. 1978.
Changes in plasma thyroxine during smoltification of coho salmon, Oncorhynchus kisutch. -- Gen. Comp. Endocrinol. 36(2):229-232.

Coho Salmon - Smolt / Thyroid System - Physiological and Biochemical Aspects (Time of Year) / Smoltification - Thyroid System / Laboratory Study

360

Dickhoff, W.W., L.C. Folmar, and A. Gorbman. 1978.
Changes in thyroid hormones during the early development of coho salmon, Oncorhynchus kisutch. -- Am. Zool. 18(3):652.

Coho Salmon - Smolt / Smoltification - Thyroid System

361

Dickhoff, W.W., L.C. Folmar, J.L. Mighell, and C.V.W. Mahnken. 1982.
Plasma thyroid hormones during smoltification of yearling and underyearling coho salmon and steelhead trout. -- Aquaculture 28(1/2):39-48.

Steelhead Trout, Chinook Salmon, Coho Salmon - Fingerling, Smolt / Thyroid System - Physiological and Biochemical Aspects (Time of Year) / Seawater Adaptation - Thyroid System / Smoltification - Physiological and Biochemical Aspects

362

Dill, L.M. 1967.
Behavioural ecology of chum salmon (O. keta) and coho salmon (O. kisutch) alevins in the gravel. -- M.Sc. thesis. -- University of British Columbia, Vancouver, British Columbia. -- 83p.

Chum Salmon, Coho Salmon - Alevin

363

Dill, L.M. 1969.
The sub-gravel behavior of Pacific salmon larvae. Pp.89-99 in T.G. Northcote (ed.). Symposium on salmon and

trout in streams. H.R. MacMillan Lectures in Fisheries, 1968. -- Institute of Fisheries, University of British Columbia, Vancouver, British Columbia.

Coho Salmon - Alevin / Vertical Movement, Behaviour / Taxis - Light Intensity

364

Dill, L.M., and T.G. Northcote. 1970.
Effects of gravel size, egg depth, and egg density on intergravel movement and emergence of coho salmon (Oncorhynchus kisutch) alevins. -- J. Fish. Res. Board Can. 27(7):1191-1199.

Coho Salmon - Alevin / Behaviour, Vertical Movement, Pattern / Taxis - Current, Light Intensity / Laboratory Study

365

Dill, L.M., and T.G. Northcote. 1970.
Effects of some environmental factors on survival, condition, and timing of emergence of chum salmon fry (Oncorhynchus keta). -- J. Fish. Res. Board Can. 27(1):196-201.

Chum Salmon - Alevin / Seasonal Timing / Laboratory Study

366

Dill, P.A. 1965.
Polarized light perception and orientation by yearling sockeye salmon (Oncorhynchus nerka). -- M.Sc. thesis. -- University of British Columbia, Vancouver, British Columbia. -- 54p.

Sockeye Salmon - Juvenile / Orientation - Celestial Cues

367

Dill, P.A. 1971.
On the development of diel activity rhythms in Atlantic salmon and rainbow trout. -- Ph.D. thesis. -- University of Western Ontario, London, Ontario.

Steelhead Trout, Atlantic Salmon - Juvenile / Behaviour - Time of Day

368

Dill, P.A. 1971.
Perception of polarized light by yearling sockeye salmon (*Oncorhynchus nerka*). -- J. Fish. Res. Board Can. 28(9):1319-1322.

Sockeye Salmon - Juvenile / Lake / Direction Finding (General) - Light Intensity, Celestial Cues / Laboratory Study

369

Dill, P.A. 1975.
Development of behaviour in alevins of Atlantic salmon, *Salmo salar*, and rainbow trout, *Salmo gairdneri*. -- Anim. Behav. 25(1):116-121.

Atlantic Salmon, Steelhead Trout - Alevin / Atlantic Canada and United States / Behaviour / Taxis - Light Intensity / Laboratory Study

370

Dill, P.A. 1982.
Behavior of alevin influencing distribution in gravel. Pp.61-70 *in* E.L. Brannon and E.O. Salo (ed.). Proceedings of the Salmon and Trout Migratory Behavior Symposium. -- School of Fisheries, University of Washington, Seattle, Washington.

Pink Salmon - Alevin / Behaviour, Vertical Movement / Laboratory Study

371

Dizon, A.E. 1971.
Ecological aspects of the evoked olfactory bulb electroencephalograph of fish, with special reference to homing behavior in salmon. -- Ph.D. thesis. -- University of Wisconsin, Madison, Wisconsin. -- 186p.

Salmon (General) - Juvenile, Mature / Imprinting and Learning, Memory / Olfactory System - Physiological and Biochemical Aspects / Direction Finding (General) - Odours

372

Dizon, A.E., R.M. Horrall, and A.D. Hasler. 1973.
Long term olfactory "memory" in coho salmon, *Oncorhynchus kisutch*. -- Fish. Bull. 71(1):315-317.

Coho Salmon - Smolt / Memory / Laboratory Study

373

Dizon, A.E., R.M. Horrall, and A.D. Hasler. 1973.
Olfactory electroencephalographic responses of homing coho salmon, Oncorhynchus kisutch, to water conditioned by conspecifics. -- Fish. Bull. 71(3):893-896.

Coho Salmon - Mature / Olfactory System - Physiological and Biochemical Aspects / Direction Finding (General) - Odours / Laboratory Study

374

Dominy, C.L. 1973.
Recent changes in Atlantic salmon (Salmo salar) runs in the light of environmental changes in the Saint John River, New Brunswick, Canada. -- Biol. Conserv. 5(2):105-113.

Atlantic Salmon / Atlantic Canada and United States / Migration (General) - Obstruction, Pollutants, Reservoirs and Impoundments

375

Donaldson, L.R. 1966.
Homing instinct in salmon. Pp.17 in N. Kawamoto (convener). Physiological basis of fish migration in the Pacific area. -- Proc. Pac. Sci. Congr. 11(7).

Sockeye Salmon, Chinook Salmon, Coho Salmon, Chum Salmon - Mature / Homing

376

Donaldson, L.R., and G.H. Allen. 1957.
Return of silver salmon, Oncorhynchus kisutch (Walbaum) to point of release. -- Trans. Am. Fish. Soc. 87:13-22.

Coho Salmon - Mature / Homing / Initiation of Stream Entry - Water Temperature / Marking

377

Donaldson, L.R., and F.J. Foster. 1940.
Experimental study of the effect of various water temperatures on the growth, food utilization, and mortality rates of fingerling sockeye salmon. -- Trans. Am. Fish. Soc. 70:339-346.

Sockeye Salmon - Fingerling / Vertical Distribution, Preference - Water Temperature / Laboratory Study

378

Drucker, B. 1972.
Some life history characteristics of coho salmon of the Karluk River system, Kodiak Island, Alaska. -- Fish. Bull. 70(1):79-94.

Coho Salmon - Smolt / Central Alaska / River, Lake / Diel Timing / Seasonal Timing, Initiation of Downstream Migration - Water Temperature

379

Dubrovskaia, N.V. 1934.
The life cycle of the pink salmon of Primor'ye. -- Rybn. Khoz. Dal'nego Vostoka 1/2:65-68 (Fish. Res. Board Can. Transl. Ser. 542).

Pink Salmon - Immature / Sea of Japan / Inshore / Route

380

Ducharme, L.J.A. 1969.
Atlantic salmon returning for their fifth and sixth consecutive spawning trips. -- J. Fish. Res. Board Can. 26(6):1661-1664.

Atlantic Salmon - Mature / Migration (General)

381

Duffy, J.M. 1977.
Southern range extensions for chum and sockeye salmon, _Oncorhynchus keta_ and _O. nerka_. -- Calif. Fish Game 63(3):196-199.

Chum Salmon, Sockeye Salmon - Adult / California / Inshore / Horizontal Distribution (Geographic)

382

Duker, G.J. 1982.
Instream orientation and species recognition by Pacific salmon. Pp.286-295 _in_ E.L. Brannon and E.O. Salo (ed.). Proceedings of the Salmon and Trout Migratory Behavior Symposium. -- School of Fisheries, University of Washington, Seattle, Washington.

Pacific Salmon (General) - Mature / River, Tributary / Migration (General) / Direction Finding (General) - Odours / Modelling

383

Dunbar, M.J. 1973.
On the west Greenland sea-life area of the Atlantic salmon. -- Arctic 26(1):3-6.

Atlantic Salmon / Greenland / Direction Finding (General), Migration (General)

384

Duncan, D.W., and H.L.A. Tarr. 1958.
Biochemical studies on sockeye salmon during spawning migration: III. Changes in the protein and non-protein nitrogen fractions in muscles of migrating sockeye salmon. -- Can. J. Biochem. Physiol. 36(8):799-803.

Sockeye Salmon - Mature / Inshore, River, Tributary / Freshwater Adaptation / Organ Systems (General) - Physiological and Biochemical Aspects (Stage of Migration) / Laboratory Study

385

Dunn, J.R. 1969.
Direction of movement of salmon in the North Pacific Ocean, Bering Sea, and Gulf of Alaska as indicated by surface gillnet catches, 1962-65. -- Int. North Pac. Fish. Comm. Bull. 26:27-55.

Sockeye Salmon, Coho Salmon, Pink Salmon - Immature, Mature / Bering Sea, Eastern Pacific Ocean, Central Pacific Ocean, Western Pacific Ocean / Open Ocean / Direction - Time of Year / Route / Capture

386

Durkin, J.L., D.L. Park, and R.F. Raleigh. 1970.
Distribution and movement of juvenile salmon in Brownlee Reservoir, 1962-65. -- Fish. Bull. 68(2):219-243.

Chinook Salmon, Sockeye Salmon, Coho Salmon - Juvenile / Colorado, Idaho, Oregon / Reservoir or Impoundment / Seasonal Timing, Non Migratory Movements, Vertical Distribution, Pattern / Speed of Migration - Time of Year, Reservoirs and Impoundments / Migration (General) - Reservoirs and Impoundments / Tagging, Capture

387

Dvinin, P.A. 1950.
Migrations and morphometrical characteristics of the west Sakhalin pink salmon. -- Dokl. Akad. Nauk SSR.

75(6):863-864 (Pp.6-8 in Pacific salmon: selected articles from Soviet periodicals. -- Jerusalem: Israel Program for Scientific Translations. 1961.).

Pink Salmon - Adult / Sea of Okhotsk / Inshore / Route

388

Dvinin, P.A. 1952.
The salmon of south Sakhalin. -- Izv. Tikhookean. Nauchno-Issled. Inst. Rybn. Khoz. Okeanogr. 37:69-108 (Fish. Res. Board Can. Transl. 120).

Pink Salmon - Mature / Chum Salmon - Fry, Immature, Mature / Masu Salmon - Mature / Sea of Okhotsk / Inshore, River, Estuary / Direction, Route - Population Density / Skeletal and Integumentary System - Morphological Aspects (Stage of Migration) / Initiation of Stream Entry - Weather, Influences (Miscellaneous), Salinity / Seasonal Timing, Pattern / Marking, Capture / Stock Identification - Morphometrics and Meristics

389

Dvinin, P.A. 1956.
Some peculiarities of the young of *Oncorhynchus gorbuscha* Walbaum when migrating from the Sakhalin rivers to the sea. -- Zool. Zh. 38:1268-1270.

In Russian; English abstract.

Pink Salmon - Fry / Sea of Okhotsk / River / Migration (General), Diel Timing

390

Dvinin, P.A. 1956.
Distinctive features of the biology of the masu salmon (*Oncorhynchus masou* Breevoort) of Sakhalin. -- Vopr. Ikhtiol. 7:33-35 (Fish. Res. Board Can. Transl. Ser. 350).

Masu Salmon - Immature, Mature / Estuary, River, Inshore / Seasonal Timing / Route / Capture

391

Dymond, J.R. 1939.
Pacific salmon in the Arctic Ocean. -- Proc. Pac. Sci. Congr. 6(3):435.

Chum Salmon, Pink Salmon / Arctic North America / Eastern Arctic Russia / Horizontal Distribution (Geographic)

392

Eales, J.G. 1963.
A comparative study of thyroid function in migrant juvenile salmon. -- Can. J. Zool. 41:811-824.

Sockeye Salmon, Coho Salmon - Smolt / Initiation of Downstream Migration, Smoltification - Thyroid System / Laboratory Study

393

Eales, J.G. 1963.
An analysis of the thyroid role in juvenile steelhead (*Salmo gairdneri*, Richardson) and factors responsible for its seasonal fluctuation in activity. -- Ph.D. thesis. -- University of British Columbia, Vancouver, British Columbia.

Steelhead Trout - Juvenile / Thyroid System - Physiological and Biochemical Aspects (Time of Year)

394

Eales, J.G. 1965.
Factors influencing seasonal changes in thyroid activity in juvenile steelhead trout, *Salmo gairdneri*. -- Can. J. Zool. 43:719-729.

Steelhead Trout - Fingerling, Smolt / Thyroid System - Physiological and Biochemical Aspects (Time of Year, Water Temperature, Photoperiod)

395

Eales, J.G. 1969.
In vivo uptake of radiothyroxine by the tissues of Atlantic salmon (*Salmo salar* L.) parr, presmolt, and smolt. -- Can. J. Zool. 47:9-16.

Atlantic Salmon - Fingerling, Smolt / Smoltification - Thyroid System / Laboratory Study

396

Eames, M., T. Quinn, K. Reidinger, and D. Haring. 1981.
Northern Puget Sound 1976 adult coho and chum tagging studies. -- Wash. Dep. Fish. Tech. Rep. 64:217p.

Chum Salmon, Coho Salmon - Mature / Washington / Inshore / Route, Seasonal Timing / Tagging

397

Eaton, M.F. 1967.
Frazer Lake sockeye investigations, 1966. -- Alaska Dep. Fish Game Inf. Leafl. 99:47p.

Sockeye Salmon - Smolt, Mature / Central Alaska / River, Lake / Seasonal Timing / Count

398

Eaton, M.F. 1968.
Frazer Lake sockeye investigations, 1967. -- Alaska Dep. Fish Game Inf. Leafl. 119:45p.

Sockeye Salmon - Smolt, Mature / Central Alaska / River, Lake / Seasonal Timing / Count

399

Eaton, M.F., and W.R. Meehan. 1966.
Frazer Lake adult sockeye investigation, 1965. -- Alaska Dep. Fish Game Inf. Leafl. 77:13p.

Sockeye Salmon - Mature / Central Alaska / River / Seasonal Timing / Count

400

Eaton, M.F., and W.R. Meehan. 1966.
Frazer Lake sockeye smolt investigation, 1965. -- Alaska Dep. Fish Game Inf. Leafl. 78:20p.

Sockeye Salmon - Smolt / Central Alaska / Lake, River / Seasonal Timing / Count

401

Ebel, W.J., D.L. Park, and R.C. Johnsen. 1973.
Effects of transportation on survival and homing of Snake River chinook salmon and steelhead trout. -- Fish. Bull. 71(2):549-563.

Chinook Salmon, Steelhead Trout - Mature / Washington, Oregon, Colorado, Idaho / River / Homing - Influences (Miscellaneous) / Marking

402

Eddy, F.B., and R.N. Bath. 1979.
Ionic regulation in rainbow trout (Salmo gairdneri) adapted to fresh water and dilute sea water. -- J. Exp. Biol. 83:181-192.

Steelhead Trout - Juvenile / Seawater Adaptation, Osmoregulatory and Excretory System - Physiological and Biochemical Aspects / Laboratory Study

403

Efanov, V.A., and L.D. Khorevin. 1978.
A contribution to intraspecific differentiation of pink salmon from the Aniwa Gulf. -- Izv. Tikhookean. Nauchno-Issled. Inst. Rybn. Khoz. Okeanogr. 102:84-89.

In Russian; English abstract.

Pink Salmon - Adult / Sea of Japan / Inshore, Open Ocean / Horizontal Distribution (Geographic), Seasonal Timing

404

Egglishaw, H.J., and P.E. Shackley. 1980.
Survival and growth of salmon, Salmo salar (L.), planted in a Scottish stream. -- J. Fish Biol. 16(5):565-584.

Atlantic Salmon - Fry, Fingerling / Southern Europe / River / Non Migratory Movements

405

Egglishaw, H.J., and P.E. Shackley. 1982.
Influence of water depth on dispersion of juvenile salmonids, Salmo salar L. and S. trutta L., in a Scottish stream. -- J. Fish Biol. 21(2):141-155.

Atlantic Salmon - Juvenile / Southern Europe / Tributary / Non Migratory Movements

406

Egorova, T.V. 1970.
The absence of seasonal groupings in sockeye salmon of the basin of the Ozernaya River. -- Izv. Tikhookean. Nauchno-Issled. Inst. Rybn. Khoz. Okeanogr. 73:39-53 (Fish. Res. Board Can. Transl. Ser. 2351).

Pink Salmon, Sockeye Salmon - Mature / Eastern Kamchatka to Chuchuki Peninsula / River / Seasonal Timing

407

Elling, C.H., and P.T. Macy. 1955.
Pink salmon tagging experiments in Icy Strait and Upper Chatham Strait, 1950. -- Fish. Bull. Fish Wildl. Serv. 56(100):331-371.

Pink Salmon - Mature / Southeastern Alaska / Inshore / Route, Speed of Migration, Seasonal Timing / Tagging

408

Ellis, C.H. 1956.
Tests on hauling as a means of reducing downstream migrant salmon mortalities on the Columbia River. -- Wash. Dep. Fish. Fish. Res. Pap. 1(4):46-48.

Chinook Salmon - Juvenile / Washington / River / Pattern / Capture

409

Ellis, C.H., and R.E. Noble. 1959.
Calculated minimum contributions of Washington's hatchery releases to the catch of salmon on the Pacific coast and the costs assessable to hatchery operations. -- Wash. Dep. Fish. Fish. Res. Pap. 2(2):88-99.

Chinook Salmon, Coho Salmon - Adult / Washington, Oregon, Southern British Columbia / Inshore / Route / Marking

410

Ellis, D.V. 1962.
Preliminary studies on the visible migrations of adult salmon. -- J. Fish. Res. Board Can. 19(1):137-148.

Sockeye Salmon, Coho Salmon - Mature / Southern British Columbia / River / Pattern, Behaviour, Vertical Distribution, Speed of Migration / Diel Timing - Time of Year / Initiation of Stream Entry - Weather

411

Ellis, D.V. 1963.
A comparative survey of the migratory behaviour of adult salmon in fish control devices. -- Fish. Res. Board Can. Manuscr. Rep. Ser. (Biol.) 749:49p.

Coho Salmon, Sockeye Salmon - Mature / Southern British Columbia / River, Artificial Obstruction / Behaviour, Diel Timing

412

Ellis, D.V. 1964.
Experiments on the effect of captivity on salmon behaviour. -- Fish. Res. Board Can. Manuscr. Rep. Ser. (Biol.) 756:31p.

Coho Salmon, Sockeye Salmon - Smolt / Behaviour - Time of Day, Time of Year / Laboratory Study

413

Ellis, D.V. 1966.
A survey of the behaviour of salmon on spawning migration through a large river system. -- Fish. Res. Board Can. Manuscr. Rep. Ser. (Biol.) 876:17p.

Sockeye Salmon - Mature / Southern British Columbia / River, Estuary / Initiation of Stream Entry - Water Temperature, Water Level and Flow Rate, Weather / Pattern - Current / Vertical Distribution, Behaviour, Speed of Migration, Schooling

414

Ellis, D.V. 1966.
Swimming speeds of sockeye and coho salmon on spawning migration. -- J. Fish. Res. Board Can. 23(2):181-187.

Sockeye Salmon, Coho Salmon - Mature / Southern British Columbia / River / Speed of Migration, Behaviour

415

Ellis, R.J. 1969.
Return and behavior of adults of the first filial generation of transplanted pink salmon, and survival of their progeny, Sashin Creek, Baranof Island, Alaska. -- U.S. Fish Wildl. Serv. Spec. Sci. Rep. Fish. 589:13p.

Pink Salmon - Mature / Southeastern Alaska / River, Estuary / Seasonal Timing / Count

416

Ellis, R.J. 1974.
Distribution, abundance and growth of sockeye salmon, Oncorhynchus nerka, and associated species in the Naknek River system, 1961-64. -- NOAA Tech. Rep. NMFS SSRF 678:53p.

Sockeye Salmon - Fingerling, Fry / Western Alaska / Lake, River / Seasonal Timing, Route, Diel Timing, Pattern, Reverse Migration, Non Migratory Movements / Initiation of Downstream Migration - Size and Growth / Direction - Current / Schooling

417

Ellison, N.F. 1965.
A Pacific salmon in Cumberland. -- Field Nat. 10(1):6-8.

Pink Salmon - Adult / Southern Europe / Horizontal Distribution (Geographic)

418

Elson, P.F. 1941.
Smolt production in Goldmine and Johnny Smith brooks in 1941. (Atlantic salmon and trout investigations, 1941. Vol.23). -- Fish. Res. Board Can. Manuscr. Rep. Biol. Stn. 213(14):7p.

Atlantic Salmon - Smolt / Atlantic Canada and United States / Tributary / Seasonal Timing, Initiation of Downstream Migration - Water Level and Flow Rate / Count

419

Elson, P.F. 1945.
Dispersal of Atlantic salmon underyearlings after planting. (Atlantic salmon and trout investigations, 1945. Vol.33). -- Fish. Res. Board Can. Manuscr. Rep. Biol. Stn. 382(8):8p.

Atlantic Salmon - Fingerling / Atlantic Canada and United States / River / Non Migratory Movements

420

Elson, P.F. 1946.
Dispersal and growth of planted salmon under-yearlings in tributaries of the middle Pollett River, 1946. (Atlantic salmon and trout investigations, 1946. Vol.35). -- Fish. Res. Board Can. Manuscr. Rep. Biol. Stn. 391(14):7p.

Atlantic Salmon - Fingerling / Atlantic Canada and United States / Tributary / Non Migratory Movements

421

Elson, P.F. 1957.
The importance of size in the change from parr to smolt in Atlantic salmon. -- Can. Fish Cult. 21:1-6.

Atlantic Salmon - Fingerling, Smolt / Atlantic Canada and United States, Southern Europe / Initiation of Downstream Migration, Smoltification - Size and Growth

422

Elson, P.F., L.N. Lauzier, and V. Zitko. 1972.
A preliminary study of salmon movements in a polluted estuary. Pp.325-330 in M. Ruivo (ed.). Marine pollution and sea life. -- Fishing News Books, London, England.

Atlantic Salmon - Mature / Atlantic Canada and United States / River, Estuary / Pattern, Speed of Migration - Pollutants / Sonic or Radio Tracking

423

Elson, P.F., and K.A. Pyefinch. 1977.
The international smolt tagging tests. -- Int. Counc. Explor. Sea Coop. Res. Rep. 59:12p.

Atlantic Salmon - Smolt / Tagging

424

Emery, L. 1981.
Range extension of pink salmon (Oncorhynchus gorbuscha) into the lower Great Lakes. -- Fisheries 6(2):7-10.

Pink Salmon / Great Lakes / Horizontal Distribution (Geographic)

425

Engel, S., and J.J. Magnuson. 1976.
Vertical and horizontal distributions of coho salmon (Oncorhynchus kisutch), yellow perch (Perca flavescens), and cisco (Coregasus artedii) in Palette Lake, Wisconsin. -- J. Fish. Res. Board Can. 33(12):2710-2715.

Coho Salmon - Juvenile / Lake / Pattern, Vertical Distribution - Time of Year / Hydroacoustics, Capture

426

Eniutina, R. 1954.
Morphobiological and morphometric characteristics of the pink salmon of the Amgun and Iski Rivers. -- Izv. Tikhookean. Nauchno-Issled. Rybn. Khoz. Okeanogr. 41:333-336 (Fish. Res. Board Can. Transl. Ser. 289).

Pink Salmon - Mature, Immature / Sea of Okhotsk / Inshore / Route / Stock Identification - Morphometrics and Meristics

427

Enyutina, R.I. 1972.
The Amur pink salmon (Oncorhynchus gorbuscha): a commercial and biological survey. -- Izv. Tikhookean. Nauchno-Issled. Rybn. Khoz. Okeanogr. 77:3-126 (Fish. Mar. Ser. Can. Transl. Ser. 3160).

Pink Salmon - Adult, Mature / Sea of Japan, Sea of Okhotsk / Inshore, Estuary, River / Route, Seasonal Timing -

Population Density, Water Temperature / Initiation of Stream Entry - Water Level and Flow Rate, Tide, Weather / Diel Timing - Tide

428

Eriksson, L.O. 1973.
Spring inversion of the diel rhythm of locomotor activity in young sea-going brown trout, *Salmo trutta trutta* L. and Atlantic salmon, *Salmo salar* L. -- *Aquilo Ser. Zool.* 14:68-79.

Atlantic Salmon - Fingerling / River / Behaviour, Locomotory System - Time of Day

429

Eriksson, L.O., and H. Lundqvist. 1982.
Circannual rhythms and photoperiod regulation of growth and smolting in Baltic salmon (*Salmo salar* L.). -- Aquaculture 28(1/2):113-121.

Atlantic Salmon - Fingerling, Smolt / Smoltification - Time of Year, Photoperiod / Desmoltification

430

Eriksson, L.O., H. Lundqvist, E. Brannas, and T. Eriksson. 1982.
Annual periodicity of activity and migration in the Baltic salmon, *Salmo salar*. -- Monogr. Biol. 45:415-430.

Atlantic Salmon - Fingerling / Iceland and Northern Europe / Behaviour - Time of Day (Time of Year, Photoperiod, Water Temperature) / Taxis - Current (Time of Year) / Seasonal Timing, Seawater Adaptation / Smoltification - Photoperiod / Migration (General) - Evolution

431

Erkkila, L.F., J.W. Moffett, O.B. Cope, B.R. Smith, and R.S. Nelson. 1950.
Sacramento-San Joaquin Delta fishery resources: effects of Tracy Pumping Plant and Delta Cross Channel. -- U.S. Fish Wildl. Serv. Spec. Sci. Rep. Fish. 56:109p.

Chinook Salmon - Juvenile, Mature / California / River / Route / Seasonal Timing - Water Level and Flow Rate

432

Evropeitseva, N.V. 1957.
Transformation to smolt stage and downstream migration of young salmon. -- Uch. Zap. Leningr. Gos. Univ. Ser. Biol.

Nauk. 228(44):117-154 (Fish. Res. Board Can. Transl. Ser. 234).

Atlantic Salmon - Fingerling, Smolt / Iceland and Northern Europe / Smoltification - Size and Growth, Water Temperature, Physiological and Biochemical Aspects, Morphological Aspects / Initiation of Downstream Migration, Seasonal Timing - Water Temperature / Behaviour

433

Evropeitseva, N.V. 1960.
Correlation between the processes of early gonad ripening and the transition into sea-migrating stage in Baltic salmon males (Salmo salar L.) in ponds. -- Zool. Zh. 39:777-779.

In Russian; English abstract.

Atlantic Salmon - Smolt / Smoltification - Physiological and Biochemical Aspects, Reproductive System

434

Evropezeva, N.W. 1959.
Experimental analysis of young salmon (Salmo salar L.) in the stage of transition to life in the sea. -- Rapp. P.-V. Reun. Cons. Int. Explor. Mer 148:29-39.

Atlantic Salmon - Smolt / Smoltification / Desmoltification

435

Evzerov, A.V., and V.I. Chernyavskii. 1973.
Causes of fluctuations in the dates of the Okhotsk chum salmon spawning run in various years. -- Izv. Tikhookean. Nauchno-Issled. Inst. Rybn. Khoz. Okeanogr. 11:106-112 (Fish. Mar. Serv. (Can.) Transl. Ser. 3330).

Chum Salmon - Mature / Sea of Okhotsk / Inshore, Estuary, River / Seasonal Timing - Age, Size and Growth

436

Ewing, R.D. 1980.
Seaward migration of juvenile chinook salmon without elevated (Na+K)-ATPase activities. -- Trans. Am. Fish. Soc. 109(4):349-356.

Chinook Salmon - Juvenile / Oregon / River / Osmoregulatory and Excretory System - Physiological and Biochemical Aspects (Time of Year) / Initiation of Downstream Migration - Water Level and Flow Rate / Seawater

Adaptation, Migration (General) / Laboratory Study

437

Ewing, R.D., and E.K. Birks. 1982.
Criteria for parr-smolt transformation in juvenile chinook salmon (*Oncorhynchus tshawytscha*). -- Aquaculture 28(1/2):185-194.

Chinook Salmon - Juvenile / Smoltification - Physiological and Biochemical Aspects / Seasonal Timing

438

Ewing, R.D., S.L. Johnson, H.J. Pribble, and J.A. Lichatowich. 1977.
Parr-smolt transformation in chinook salmon (*Oncorhynchus tshawytscha*) W.: 1. Gill (Na+K)-activated adenosinetriphosphatase activity under various temperature and photoperiod regimes. -- Oreg. Dep. Fish Game Inf. Rep. Ser. Fish. 77-4:16p.

Chinook Salmon - Smolt / Smoltification - Physiological and Biochemical Aspects (Photoperiod, Water Temperature) / Laboratory Study

439

Ewing, R.D., S.L. Johnson, H.J. Pribble, and J.A. Lichatowich. 1979.
Temperature and photoperiod effects on gill (Na+K)-ATPase activity in chinook salmon (*Oncorhynchus tshawytscha*). -- J. Fish. Res. Board Can. 36(11):1347-1353.

Chinook Salmon - Juvenile / Washington / Osmoregulatory and Excretory System, Smoltification - Physiological and Biochemical Aspects (Time of Year, Photoperiod, Size and Growth, Water Temperature)

440

Ewing, R.D., H.J. Pribble, S.L. Johnson, C.A. Fustish, J. Diamond, and J.A. Lichatowich. 1980.
Influence of size, growth rate, and photoperiod on cyclic changes in gill (Na+K)-ATPase activity in chinook salmon (*Oncorhynchus tshawytscha*). -- Can. J. Fish. Aquat. Sci. 37(4):600-605.

Chinook Salmon - Juvenile / Smoltification - Physiological and Biochemical Aspects, Size and Growth, Photoperiod / Osmoregulatory and Excretory System - Physiological and Biochemical Aspects / Laboratory Study

441

Fagerlund, U.H.M., J.R. McBride, M. Smith, and N. Tomlinson. 1963.

Olfactory perception in migrating salmon: III. Stimulants for adult sockeye salmon (*Oncorhynchus nerka*) in home stream waters. -- J. Fish. Res. Board Can. 20(6):1457-1463.

Sockeye Salmon - Mature / Southern British Columbia / River / Olfactory System - Physiological and Biochemical Aspects / Direction Finding (General) - Odours / Laboratory Study

442

Falter, C.M., and R.R. Ringe. 1974.

Pollution effects on adult steelhead migration in the Snake River. -- U.S. Environ. Prot. Agency Ecol. Res. Ser. EPA-660/3-73-017:103p.

Not seen.

Steelhead Trout - Mature / River / Migration (General) - Pollutants

443

Farmer, G.J., J.A. Ritter, and D. Ashfield. 1978.

Seawater adaptation and parr-smolt transformation of juvenile Atlantic salmon, *Salmo salar*. -- J. Fish. Res. Board Can. 35(1):93-100.

Atlantic Salmon - Fingerling, Smolt / Atlantic Canada and United States / Seawater Adaptation, Smoltification, Osmoregulatory and Excretory System - Physiological and Biochemical Aspects / Seasonal Timing / Laboratory Study

444

Favorite, F., and M.G. Hanavan. 1963.

Oceanographic conditions and salmon distribution south of the Alaska Peninsula and Aleutian Islands, 1956. -- Int. North Pac. Fish. Comm. Bull. 11:57-72.

Pacific Salmon (General) - Adult / Central Pacific Ocean, Eastern Pacific Ocean / Open Ocean / Horizontal Distribution (Geographic), Route - Water Temperature, Salinity / Capture

445

Fedorenko, A.Y., and R.J. Cook. 1982.

Trapping and coded wire tagging of wild coho juveniles in the Vedder-Chilliwack River, 1976 to 1979. -- Can. Manuscr. Rep. Fish. Aquat. Sci. 1678:79p.

Coho Salmon - Juvenile / Southern British Columbia / River / Seasonal Timing, Non Migratory Movements / Count, Tagging

446

Fessler, J.L., and H.H. Wagner. 1969.
Some morphological and biochemical changes in steelhead trout during the parr-smolt transformation. -- J. Fish. Res. Board Can. 26(11):2823-2841.

Steelhead Trout - Fingerling, Smolt / Oregon / Smoltification - Physiological and Biochemical Aspects, Morphological Aspects, Behaviour

447

Fields, P.E. 1954.
The effect of electric lights upon the upstream passage of sockeye salmon through the University of Washington fishladder. -- Univ. Wash. Sch. Fish. Tech. Rep. 10:11p.

Pacific Salmon (General) - Adult / Guiding

448

Fields, P.E. 1957.
Guiding migrant salmon, -- Sci. Mon. 85:10-22.

Pacific Salmon (General) - Juvenile / Guiding

449

Fields, P.E., R.J. Adkins, R.E. Carney, and G.L. Finger. 1955.
The reaction of young silver salmon and steelhead trout to infrared light barriers. -- Univ. Wash. Sch. Fish. Tech. Rep. 14:8p.

Pacific Salmon (General) - Juvenile / Guiding

450

Fields, P.E., and G.L. Finger. 1954.
The reaction of five species of young Pacific salmon and steelhead trout to light. -- Univ. Wash. Sch. Fish. Tech. Rep. 2:24p.

Pacific Salmon (General) - Juvenile / Preference - Light Intensity / Guiding

451

Fields, P.E., and G.L. Finger. 1956.
The effectiveness of constant and intermittently flashing light barriers in guiding young silver salmon. -- Univ. Wash. Sch. Fish. Tech. Rep. 22:23p.

Pacific Salmon (General) - Juvenile / Guiding

452

Fields, P.E., G.L. Finger, R.J. Adkins, and R. Pyke. 1954.
Factors influencing the efficiency of light barriers in the guidance of young Salmonidae. -- Univ. Wash. Sch. Fish. Tech. Rep. 8:25p.

Pacific Salmon (General) - Juvenile / Guiding

453

Fields, P.E., G.L. Finger, and R.J. Adkins. 1955.
The effect of electric light upon the upstream passage of three species of adult salmon through the University of Washington fishladder. -- Univ. Wash. Sch. Fish. Tech. Rep. 12:10p.

Pacific Salmon (General) - Adult / Guiding

454

Fields, P.E., G.L. Finger, R.J. Adkins, R.E. Carney, and R. Pyke. 1955.
A factorial study of the response of steelhead trout, chinook salmon and silver salmon fingerlings to chain barriers in moving water. -- Univ. Wash. Sch. Fish. Tech. Rep. 13:7p.

Pacific Salmon (General) - Juvenile / Guiding

455

Fields, P.E., G.L. Finger, R.J. Adkins, R.E. Carney, and R. Pyke. 1955.
A factorial study of the response of steelhead trout, chinook salmon and silver salmon fingerlings to light barriers in moving water. -- Univ. Wash. Sch. Fish. Tech. Rep. 11:11p.

Pacific Salmon (General) - Juvenile / Guiding

456

Fields, P.E., D.E. Johnson, and S.Z. El-Sayed. 1959.
The 1958-59 McNary Dam light guiding studies. -- Univ.

Wash. Coll. Fish. Tech. Rep. 50:25p.

Pacific Salmon (General) - Juvenile / Guiding

457

Fields, P.E., D.E. Johnson, G.L. Finger, R.J. Adkins, and R.E. Carney. 1956.
A field test of the effectiveness of two intensities of shaded and unshaded lights in guiding downstream migrant salmon. -- Univ. Wash. Sch. Fish. Tech. Rep. 21:33p.

Pacific Salmon (General) - Juvenile / Guiding

458

Fields, P.E., and A.K. Murray. 1956.
The response of young silver salmon to a light barrier after three levels of light adaptation. -- Univ. Wash. Sch. Fish. Tech. Rep. 27:9p.

Coho Salmon - Juvenile / Guiding

459

Fields, P.E., A.K. Murray, D.E. Johnson, and G.L. Finger. 1958.
Guiding migrant salmon by light repulsion and attraction in fast and turbid water. -- Univ. Wash. Sch. Fish. Tech. Rep. 36/41:44p.

Pacific Salmon (General) - Juvenile / Guiding

460

Finger, G.L., and P.E. Fields. 1957.
The role of light adaptation on negative phototaxis in silver salmon (*Oncorhynchus kisutch*). -- Univ. Wash. Sch. Fish. Tech. Rep. 34:25p.

Coho Salmon - Juvenile / Guiding

461

Finnell, L.M., and E.B. Reed. 1969.
The diel vertical movement of kokanee salmon, *Oncorhynchus nerka*, in Granby Reservoir, Colorado. -- Trans. Am. Fish. Soc. 98(2):245-252.

Sockeye Salmon - Landlocked / Colorado, Idaho / Reservoir or Impoundment / Vertical Movement - Water Temperature, Food Availability, Light Intensity / Hydroacoustics

462

Fitch, J.E. 1949.
Some unusual occurrences of fish on the Pacific coast. -- Calif. Fish Game 35(1):41-49.

Chinook Salmon - Adult / California / Inshore / Horizontal Distribution (Geographic)

463

Flagg, T.A. 1981.
Swimming stamina and survival related to swimming fatigue in response to direct seawater entry during the parr-smolt transformation of coho salmon (Oncorhynchus kisutch). -- M.Sc. thesis. -- University of Washington, Seattle, Washington.

Coho Salmon - Fingerling, Smolt / Seawater Adaptation, Locomotory System, Smoltification - Physiological and Biochemical Aspects / Energetics

464

Flagg, T.A., and L.S. Smith. 1982.
Changes in swimming behavior and stamina during smolting of coho salmon. Pp.191-195 in E.L. Brannon and E.O. Salo (ed.). Proceedings of the Salmon and Trout Migratory Behavior Symposium. -- School of Fisheries, University of Washington, Seattle, Washington.

Coho Salmon - Fingerling, Smolt / Smoltification - Behaviour / Locomotory System, Seawater Adaptation - Physiological and Biochemical Aspects

465

Flain, M. 1981.
Distribution of quinnat salmon, Oncorhynchus tshawytscha, off the east coast of the South Island, 1925-78. -- N.Z. J. Mar. Freshwater Res. 15(1):21-24.

Chinook Salmon - Adult / New Zealand / Inshore / Horizontal Distribution (Geographic) - Current / Capture

466

Fletcher, G.L., and M.J. King. 1978.
Copper, zinc, calcium, magnesium, and phosphate in gonads and livers of sockeye salmon, (Oncorhynchus nerka) during their spawning migration. -- Comp. Biochem. Physiol. 60A:127-130.

Sockeye Salmon - Mature / Inshore, River, Tributary /

Organ Systems (General) - Physiological and Biochemical Aspects (Stage of Migration) / Freshwater Adaptation / Laboratory Study

467

Fletcher, G.L., E.G. Watts, and M.J. King. 1975.
Copper, zinc, and total protein levels in the plasma of sockeye salmon (Oncorhynchus nerka) during their spawning migration. -- J. Fish. Res. Board Can. 32(1):78-82.

Sockeye Salmon - Mature / Southern British Columbia / River / Organ Systems (General) - Physiological and Biochemical Aspects (Stage of Migration) / Laboratory Study

468

Foerster, R.E. 1926.
Cultus Lake salmon investigations, 1926. -- Biol. Board Can. Manuscr. Rep. Biol. Stn. 3:15p.

Sockeye Salmon - Juvenile / Southern British Columbia / Lake, River / Diel Timing - Time of Year / Count

469

Foerster, R.E. 1929.
An investigation of the life history and propagation of the sockeye salmon (Oncorhynchus nerka) at Cultus Lake, British Columbia: no.1. Introduction and the run of 1925. -- Contr. Can. Biol. Fish. 5(1):3-35.

Coho Salmon, Sockeye Salmon - Mature / Southern British Columbia / River, Lake / Seasonal Timing, Initiation of Upstream Migration - Water Temperature / Count

470

Foerster, R.E. 1929.
An investigation of the life history and propagation of the sockeye salmon (Oncorhynchus nerka) at Cultus Lake, British Columbia: no. 3. The down-stream migration of young in 1926 and 1927. -- Contr. Can. Biol. Fish. 5(3):39-53.

Sockeye Salmon - Fry, Juvenile / Southern British Columbia / River, Lake / Behaviour / Seasonal Timing, Initiation of Downstream Migration - Water Temperature / Diel Timing - Time of Year, Population Density / Count

471

Foerster, R.E. 1929.
Notes on the relation of temperature, hydrogen-ion

concentration and oxygen, to the migration of adult sockeye salmon. -- Can. Field Nat. 43(1):1-4.

Sockeye Salmon - Mature / Southern British Columbia / River, Tributary / Initiation of Stream Entry - Water Temperature, Influences (Miscellaneous)

472

Foerster, R.E. 1930.
The reactions of some sockeye salmon to a power dam. -- Trans. Am. Fish. Soc. 60:244-246.

Sockeye Salmon - Mature / Southern British Columbia / River, Artificial Obstruction / Pattern, Reverse Migration - Obstruction

473

Foerster, R.E. 1936.
An investigation of the life history and propagation of the sockeye salmon (Oncorhynchus nerka) at Cultus Lake, British Columbia: no. 5. The life history cycle of the 1926 year class with artificial propagation involving the liberation of free-swimming fry. -- J. Biol. Board Can. 2(3):311-333.

Sockeye Salmon - Juvenile, Mature / Southern British Columbia / Lake, River, Inshore / Seasonal Timing, Initiation of Downstream Migration - Water Temperature, Light Intensity / Route / Marking / Count

474

Foerster, R.E. 1936.
The return from the sea of sockeye salmon (Oncorhynchus nerka) with special reference to percentage survival, sex proportions and progress of migrations. -- J. Biol. Board Can. 3(1):26-42.

Sockeye Salmon - Mature / Southern British Columbia / Inshore / Route, Pattern / Marking

475

Foerster, R.E. 1937.
The relation of temperature to the seaward migration of young sockeye salmon (Oncorhynchus nerka). -- J. Biol. Board Can. 3(5):421-438.

Sockeye Salmon - Juvenile / Southern British Columbia / Lake, River / Seasonal Timing, Initiation of Downstream Migration, Termination of Migration - Water Temperature, Weather / Count

476

Foerster, R.E. 1947.
Experiment to develop sea-run from land-locked sockeye salmon (*Oncorhynchus nerka kennerlyi*). -- J. Fish. Res. Board Can. 7(2):88-93.

Sockeye Salmon - Landlocked / Migration (General)

477

Foerster, R.E. 1955.
The Pacific salmon (genus *Oncorhynchus*) of the Canadian Pacific coast, with particular reference to their occurence in or near fresh water. -- Int. North Pac. Fish. Comm. Bull. 1:1-56.

Pacific Salmon (General) / Southern British Columbia, Northern British Columbia / Migration (General)

478

Foerster, R.E. 1968.
The sockeye salmon, *Oncorhynchus nerka*. -- Bull. Fish. Res. Board Can. 162:422p.

Sockeye Salmon / Pacific Ocean (General) / Migration (General)

479

Foerster, R.E., and W.E. Ricker. 1953.
The coho salmon of Cultus Lake and Sweltzer Creek. -- J. Fish. Res. Board Can. 10(6):293-319.

Sockeye Salmon, Chum Salmon, Pink Salmon, Coho Salmon - Mature, Juvenile / Coho Salmon - Residual, Smolt / Southern British Columbia / River, Lake / Migration (General) / Direction Finding (General) / Seasonal Timing / Count

480

Folmar, L.C. 1979.
Some physiological changes in coho salmon (*Oncorhynchus kisutch*) during smoltification and seawater adaptation. -- Ph.D. thesis. -- University of British Columbia, Vancouver, British Columbia. -- 163p.

Coho Salmon - Fingerling, Smolt / Smoltification, Osmoregulatory and Excretory System, Seawater Adaptation - Physiological and Biochemical Aspects (Thyroid System)

481

Folmar, L.C., and W.W. Dickhoff. 1978.
Some physiological changes during smoltification of coho salmon, *Oncorhynchus kisutch*. -- Am. Zool. 18(3):606.

Coho Salmon - Smolt / Smoltification, Osmoregulatory and Excretory System, Seawater Adaptation - Physiological and Biochemical Aspects

482

Folmar, L.C., and W.W. Dickhoff. 1979.
Plasma thyroxine and gill Na+-K+ ATPase changes during seawater acclimation of coho salmon, *Oncorhynchus kisutch*. -- Comp. Biochem. Physiol. 63A:329-332.

Coho Salmon - Smolt / Seawater Adaptation, Osmoregulatory and Excretory System, Smoltification - Physiological and Biochemical Aspects, Thyroid System / Laboratory Study

483

Folmar, L.C., and W.W. Dickhoff. 1980.
The parr-smolt transformation (smoltification) and seawater adaptation in salmonids: a review of selected literature. -- Aquaculture 21(1):1-37.

Salmon (General) - Juvenile / Smoltification - Morphological Aspects, Behaviour, Physiological and Biochemical Aspects, Endocrine System (General), Thyroid System, Pituitary System, Interrenal System / Seawater Adaptation, Osmoregulatory and Excretory System - Physiological and Biochemical Aspects

484

Folmar, L.C., and W.W. Dickhoff. 1981.
Evaluation of some physiological parameters as predictive indices of smoltification. -- Aquaculture 23(1/4):309-324.

Coho Salmon - Smolt / Smoltification - Physiological and Biochemical Aspects / Thyroid System, Osmoregulatory and Excretory System - Physiological and Biochemical Aspects / Laboratory Study

485

Folmar, L.C., W.W. Dickhoff, and H.O. Hodgins. 1982.
The effects of Aroclor 1254 and No. 2 fuel oil on smoltification and sea-water adaptation of coho salmon (*Oncorhynchus kisutch*). -- Aquat. Toxicol. 2(5/6):291-300.

Coho Salmon - Juvenile / Smoltification, Seawater Adaptation - Pollutants

486

Folmar, L.C., W.W. Dickhoff, C.V.W. Mahnken, and F.W. Waknitz. 1982.
Stunting and parr-reversion during smoltification of coho salmon (Oncorhynchus kisutch). -- Aquaculture 28(1/2):91-104.

Coho Salmon / Desmoltification / Smoltification - Morphological Aspects, Physiological and Biochemical Aspects / Seawater Adaptation, Osmoregulatory and Excretory System - Physiological and Biochemical Aspects

487

Fontaine, M. 1946.
Vues actuelles sur les migrations des poissons. -- Experientia 2(7):233-237.

Salmon (General) / Migration (General) - Endocrine System (General), Evolution

488

Fontaine, M. 1948.
Physiologie du saumon. -- Ann. Stn. Cent. Hydrobiol. Appl. 2:155-183.

Not seen.

Salmon (General) / Migration (General), Smoltification - Physiological and Biochemical Aspects

489

Fontaine, M. 1953.
La fonction hypophyso-thyroidienne des poissons dans ses rapports avec leur morphologie et leur comportement. -- J. Cons. Cons. Int. Explor. Mer 19:23-38.

Not seen.

Atlantic Salmon - Smolt / Smoltification - Physiological and Biochemical Aspects, Thyroid System

490

Fontaine, M. 1954.
Du déterminisme physiologique des migrations. -- Biol. Rev. 29:390-418.

Not seen.

Salmon (General) / Migration (General) - Physiological and Biochemical Aspects

491

Fontaine, M. 1960.
Quelques problêmes physiologiques posés par le Salmo salar intérêt de l'etude de la smoltification type de préparation au comportment migratoire. -- Experientia 16:433-438.

Atlantic Salmon - Juvenile / Migration (General) - Physiological and Biochemical Aspects

492

Fontaine, M. 1964.
Les mécanismes physiologiques du comportment migratoire amphibiotique catadrome des poissons téléostéens. -- Verh. Int. Ver. Theor. Angew. Limnol. 15(2):959-967.

Not seen.

Atlantic Salmon - Juvenile / Migration (General) - Physiological and Biochemical Aspects

493

Fontaine, M. 1966.
General views from the study of physiological mechanisms intervening in the preparation to a migratory behavior. Pp.6-7 in N. Kawamoto (convener). Physiological basis of fish migration in the Pacific area. -- Proc. Pac. Sci. Congr. 11(7).

Atlantic Salmon - Juvenile / Migration (General) - Physiological and Biochemical Aspects

494

Fontaine, M. 1972.
Endocrine glands and various forms of fish behaviour. Pp.158-162 in Trudy Tsentralnoi Laboratorii po Vosproizvodstvu Rybnykh Zapasov Glavrybvoda MRKh SSSR. (Fish. Res. Board Can. Transl. Ser. 2847).

Salmon (General) / Migration (General) - Endocrine System (General)

495

Fontaine, M. 1975.
Physiological mechanisms in the migration of marine and amphihaline fish. -- Adv. Mar. Biol. 13:241-355.

Salmon (General) / Migration (General) - Physiological and Biochemical Aspects

496

Fontaine, M., and M.M. Baraduc. 1954.
Influence d'une thyroxinisation prolongée sur l'euryhalinité d'un salmonide, la truite arc-en-ciel (Salmo gairdnerii Rich.). -- C. R. Séances Soc. Biol. Paris 148:1942-1944.

Not seen.

Steelhead Trout / Osmoregulatory and Excretory System - Physiological and Biochemical Aspects (Thyroid System)

497

Fontaine, M., and O. Callamand. 1949.
La lipase sérique du saumon (Salmo salar L.) à diverses étapes de son développment et de ses migrations. -- Bull. Inst. Océanogr. Monaco 944:2p.

Not seen.

Atlantic Salmon / Organ Systems (General) - Physiological and Biochemical Aspects (Stage of Migration)

498

Fontaine, M., and M. Chauvel. 1961.
Evaluation du pouvoir gonadotrope de l'hypophyse des poissons téléostéens en particular du Salmo salar L. à diverses étapes de son développement et de ses migrations. -- C. R. Hebd. Séances Acad. Sci. Paris 252:822-825.

Not seen.

Atlantic Salmon / Pituitary System - Physiological and Biochemical Aspects (Stage of Migration)

499

Fontaine, M., M.M. Chartier-Baraduc, J. Deville, E. Lopez, and T.M. Poncet. 1969.
Sur les variations de la calcémie observées chez Salmo salar L. à diverses etapes de son cycle vital: leur déterminisme endocrinien et leur intervention éventuelle sur

le comportment. -- C. R. Hebd. Sêances Acad. Sci. Paris 268:1958-1961.

Not seen.

Atlantic Salmon / Endocrine System (General)

500

Fontaine, M., and L. Fage. 1951.
Sur la diminution de la teneur en chlore du muscle des jeunes saumons (smolts) lors de la migration d'avalasion. -- C. R. Hebd. Sêances Acad. Sci. Paris 232:2477-2479.

Not seen.

Atlantic Salmon - Smolt / Southern Europe / River / Osmoregulatory and Excretory System - Physiological and Biochemical Aspects

501

Fontaine, M., and J. Hatey. 1950.
Sur la teneur en glycogene du foie de saumon (Salmo salar L.) adulte â diverses êtapes de sa migration. -- C. R. Sêances Soc. Biol. Paris 144:788-789.

Not seen.

Atlantic Salmon - Mature / Digestive System - Physiological and Biochemical Aspects (Stage of Migration)

502

Fontaine, M., and J. Hatey. 1950.
Variations de la teneur du foie en glycogene chez le jeune saumon (Salmo salar L.) au cours de la "smoltification". -- C. R. Séances Soc. Biol. Paris 144:953-955.

Not seen.

Atlantic Salmon - Smolt / Digestive System, Smoltification - Physiological and Biochemical Aspects

503

Fontaine, M., and J. Hatey. 1953.
Contribution â l'etude du mêtabolisme glucidique du saumon (Salar salar L.) â diverses êtapes de son dêveloppement et de ses migrations. -- Physiol. Comp. 3:37-52.

Not seen.

Atlantic Salmon / Energetics / Digestive System - Physiological and Biochemical Aspects (Stage of Migration)

504

Fontaine, M., F. Lachiver, J. Leloup, and M. Olivereau. 1948.
La fonction thyroidienne du saumon (Salmo salar L.) au cours de sa migration reproductrice. -- J. Physiol. 40(A):182-184.

Not seen.

Atlantic Salmon - Mature / Thyroid System - Physiological and Biochemical Aspects

505

Fontaine, M., and J. Leloup. 1950.
L'iodémie du saumon (Salmo salar L.) au cours de sa migration reproductrice. -- C. R. Hebd. Séances Acad. Sci. Paris 230:1216-1218.

Not seen.

Atlantic Salmon - Mature / River / Organ Systems (General) - Physiological and Biochemical Aspects (Stage of Migration)

506

Fontaine, M., and J. Leloup. 1950.
Sur l'iodémie de deux téléostéens migrateurs potamotoques Salmo salar L. et Alosa alosa L. au début de leur montée reproductrice. -- C. R. Hebd. Séances Acad. Sci. Paris 230:775-777.

Not seen.

Atlantic Salmon - Mature / Organ Systems (General) - Physiological and Biochemical Aspects

507

Fontaine, M., and J. Leloup. 1952.
L'iode thyroiden du jeune saumon au cours de sa smoltification. -- C. R. Hebd. Séances Acad. Sci. Paris 234:1479-1480.

Not seen.

Atlantic Salmon - Smolt / Smoltification, Thyroid System - Physiological and Biochemical Aspects

508

Fontaine, M., J. Leloup, and M. Olivereau. 1952.
La fonction thyroidienne du jeune saumon, *Salmo salar* L. (parr et smolt) et son intervention possible *dans la* migration d'avalaison. -- Arch. Sci. Physiol. 6(2):83-104.

Not seen.

Atlantic Salmon - Fingerling, Smolt / Thyroid System - Physiological and Biochemical Aspects

509

Fontaine, M., and J. Marchelidon. 1971.
Amino acid contents of the brain and the muscle of young salmon (*Salmo salar* L.) at parr and smolt stages. -- Comp. Biochem. *Physiol. 4*0A:127-134.

Atlantic Salmon - Fingerling, Smolt / Smoltification - Morphological Aspects, Physiological and Biochemical Aspects, Endocrine System (General) / Laboratory Study

510

Fontaine, M., M. Mazeaud, and F. Mazeaud. 1963.
L'adrénalinémie du *Salmo salar* L. à quelques étapes de son cycle vital et de *ses migrations*. -- C. R. Hebd. Séances Acad. Sci. Paris 256:4562-4565.

Not seen.

Atlantic Salmon / Endocrine System (General) - Physiological and Biochemical Aspects (Stage of Migration)

511

Fontaine, M., and M. Olivereau. 1949.
L'hypophyse du saumon (*Salmo salar* L.) à diverses étapes de sa migration. -- *C. R. Hebd.* Séances Acad. Sci. Paris 228:772-774.

Not seen.

Atlantic Salmon / Pituitary System - Stage of Migration

512

Fontaine, M., and M. Olivereau. 1959.
Interrénal antérieur et smoltification chez *Salmo salar* L. -- Bull. Soc. Zool. Fr. 84:161-162.

Not seen.

Atlantic Salmon - Smolt / Interrenal System, Smoltification - Physiological and Biochemical Aspects

513

Fontaine, M., and R. Vibert. 1952.
Migration fluviale anadrome du saumon (_Salmo salar_ L.) et gradient de salintē. -- Ann. Stn. Cent. _Hydrobiol. Appl._ 4:339-346 (Fish. Res. Board Can. Transl. Ser. 100).

Atlantic Salmon - Mature / Southern Europe / Estuary, River / Direction Finding (General) - Salinity

514

Fontaine, M., and R. Vibert. 1953.
Contribution ā l'ētude des facteurs guidant la migration fluviale anadrome du saumon (_Salmo salar_ L.). -- Bull. Soc. Zool. Fr. 77:310-313.

Not seen.

Atlantic Salmon / River / Migration (General)

515

Forsythe, M.G. 1967.
Analysis of the 1965 smolt run in the northwest Miramichi River, New Brunswick. -- Fish. Res. Board Can. Tech. Rep. 4:73p.

Atlantic Salmon - Smolt / Atlantic Canada and United States / River / Seasonal Timing - Water Temperature, Water Level and Flow Rate / Count

516

Forsythe, M.G. 1968.
Analysis of the 1966 smolt run in the northwest Miramichi River, New Brunswick. -- Fish. Res. Board. Can. Tech. Rep. 91:33p.

Atlantic Salmon - Smolt / Atlantic Canada and United States / River / Seasonal Timing - Water Level and Flow Rate, Water Temperature / Count

517

Foster, R. 1978.
Genetic effects on Dungeness, Cowlitz-Umpgua hybrid and Quillayute chinook released from Soleduck hatchery. Pp.126-132 _in_ B.G. Shepherd and R.M.J. Ginetz (ed.). Proceedings of the 1977 Northeast Pacific Chinook and Coho Salmon Workshop. -- Fish. Mar. Serv. (Can.) Tech. Rep. 759.

Chinook Salmon - Mature / Washington / Inshore / Route - Genetic Aspects / Tagging

518

Fowke, P. 1926.
The homing instincts of rainbow trout. -- Salmon Trout Mag. 45:341-348.

Steelhead Trout / Homing, Migration (General)

519

Fraser, F.J., D.D. Bailey, and M.J. Wood. 1978.
Big Qualicum River salmon development project. (Volume 3). -- Fish. Mar. Serv. (Can.) Tech. Rep. 752:22p.

Chum Salmon - Mature / Southern British Columbia / Inshore / Route / Tagging

520

Fraser, F.J., S.J. Berry, and B. Allen. 1979.
Big Qualicum salmon development project, Volume 4: chum fry marine study. -- Fish. Mar. Serv. (Can.) Tech. Rep. 824:32p.

Chum Salmon - Fry, Immature / Southern British Columbia / Estuary, Inshore, River / Vertical Distribution - Size and Growth / Direction, Route, Seasonal Timing / Capture / Count

521

Fraser, F.J., P.J. Starr, and A.Y. Fedorenko. 1982.
A review of the chinook and coho salmon of the Fraser River. -- Can. Tech. Rep. Fish. Aquat. Sci. 1126:130p.

Coho Salmon, Chinook Salmon - Fry, Juvenile, Immature, Mature / Southern British Columbia / River, Inshore, Tributary / Non Migratory Movements, Seasonal Timing, Pattern, Migration (General), Route

522

Fredin, R.A., and D.D. Worlund. 1974.
Catches of sockeye salmon of Bristol Bay origin by the Japanese mothership salmon fishery, 1956-1970. -- Int. North Pac. Fish. Comm. Bull. 30:1-80.

Sockeye Salmon - Immature, Mature / Bering Sea, Western Pacific Ocean, Central Pacific Ocean / Open Ocean / Horizontal Distribution (Geographic), Route, Seasonal Timing / Tagging / Stock Identification - Parasite Tags

523

French, R., H. Bilton, M. Osako, and A. Hartt. 1976. Distribution and origin of sockeye salmon (Oncorhynchus nerka) in the offshore waters of the North Pacific Ocean. -- Int. North Pac. Fish. Comm. Bull. 34:113p.

Sockeye Salmon - Immature, Mature / Pacific Ocean (General) / Open Ocean / Horizontal Distribution (Geographic), Route - Water Temperature, Current, Food Availability, Salinity / Vertical Distribution, Vertical Movement, Speed of Migration / Tagging, Capture / Stock Identification - Morphometrics and Meristics, Scale Analysis, Parasite Tags, Electrophoresis and Serology

524

French, R.R., and R.G. Bakkala. 1974. A new model of ocean migrations of Bristol Bay sockeye salmon. -- Fish. Bull. 72(2):589-614.

Sockeye Salmon - Immature, Mature / Western Alaska, Bering Sea, Eastern Pacific Ocean, Central Pacific Ocean, Western Pacific Ocean, Sea of Okhotsk / Inshore, Open Ocean / Route - Water Temperature, Current / Speed of Migration, Seasonal Timing / Modelling, Tagging

525

French, R.R., R.G. Bakkala, M. Osako, and J. Ito. 1971. Distribution of salmon and related oceanographical features in the North Pacific Ocean. -- U.S. Fish Wildl. Serv. Spec. Sci. Rep. Fish. 625:22p.

Chum Salmon, Pink Salmon, Sockeye Salmon - Immature, Adult / Eastern Pacific Ocean, Central Pacific Ocean / Open Ocean / Horizontal Distribution (Geographic) - Size and Growth, Age / Seasonal Timing, Route

526

French, R.R., R.G. Bakkala, and D.F. Sutherland. 1975. Ocean distribution of stocks of Pacific salmon, Oncorhynchus spp., and steelhead trout, Salmo gairdnerii, as shown by tagging experiments. -- NOAA Tech. Rep. NMFS SSRF 689:88p.

Chum Salmon, Sockeye Salmon, Pink Salmon, Coho Salmon, Chinook Salmon, Steelhead Trout - Immature, Mature / Pacific Ocean (General) / Route, Horizontal Distribution (Geographic) / Tagging

527

French, R.R., and W.B. McAlister. 1970.
Winter distribution of salmon in relation to currents and water masses in the northeastern Pacific Ocean and migrations of sockeye salmon. -- Trans. Am. Fish. Soc. 99(4):649-663.

Sockeye Salmon, Coho Salmon, Chum Salmon - Immature, Adult / Eastern Pacific Ocean / Open Ocean / Horizontal Distribution (Geographic) - Current

528

French, R.R., and R.J. Wahle. 1960.
Salmon runs, upper Columbia River, 1956-57. -- U.S. Fish Wildl. Serv. Spec. Sci. Rep. Fish. 364:15p.

Sockeye Salmon, Chinook Salmon, Steelhead Trout - Mature / Washington / River, Artificial Obstruction / Seasonal Timing / Speed of Migration - Obstruction

529

French, R.R., and R.J. Wahle. 1965.
Salmon escapements above Rock Island Dam, 1954-60. -- U.S. Fish Wildl. Serv. Spec. Sci. Rep. Fish. 493:18p.

Chinook Salmon, Sockeye Salmon, Steelhead Trout - Mature / Washington / River, Artificial Obstruction / Seasonal Timing / Count

530

Fridriksson, A. 1952.
Marking of fish in Europe during 1927-1951. -- Rapp. P.-V. Reun. Cons. Int. Explor. Mer 132:55-64.

Atlantic Salmon / Iceland and Northern Europe, Southern Europe / Marking, Tagging

531

Fried, S.M. 1977.
Seaward migration of hatchery-reared Atlantic salmon (Salmo salar) smolts in the Penobscot River estuary, Maine: riverine movements. -- Ph.D. thesis. -- University of Maine, Orono, Maine. -- 63p.

Atlantic Salmon - Smolt / Atlantic Canada and United States / River, Estuary / Initiation of Downstream Migration - Water Temperature / Pattern, Behaviour, Speed of

Migration, Vertical Distribution, Voluntary Displacement / Sonic or Radio Tracking

532

Fried, S.M., J.D. McCleave, and G.W. LaBar. 1978.
Seaward migration of hatchery-reared Atlantic salmon, Salmo salar, smolts in the Penobscot River estuary, Maine: riverine movements. -- J. Fish. Res. Board Can. 35(1):76-87.

Atlantic Salmon - Smolt / Atlantic Canada and United States / Estuary, River / Seasonal Timing, Initiation of Downstream Migration - Water Temperature / Route, Speed of Migration, Pattern - Tide, Current / Vertical Distribution / Sonic or Radio Tracking

533

Frolov, A.I. 1964.
Oceanic distribution and feeding conditions of far eastern salmon in the southern regions of their range. Pp.84-89 in E.N. Pavlovskii (ed.). Lososevoe Khoziaistvo Dal'nevo Vostoka. -- Izdatel'stvo Nauka, Moskva, USSR. (Univ. Wash. Fish. Res. Inst. Cir. 227:49-54).

Pink Salmon, Chum Salmon - Adult / Western Pacific Ocean / Open Ocean / Horizontal Distribution (Geographic) - Water Temperature, Food Availability / Seasonal Timing / Capture

534

Fry, D.H. 1967.
A 1955 record of pink salmon, Oncorhynchus gorbuscha, spawning in the Russian River. -- Calif. Fish Game 53(3):210-211.

Pink Salmon - Mature / California / Horizontal Distribution (Geographic)

535

Fry, D.H., and E.P. Hughes. 1951.
The California salmon troll fishery. -- Pac. Mar. Fish. Comm. Bull. 2:7-42.

Chinook Salmon, Coho Salmon - Immature, Mature / California / Inshore / Route / Tagging

536

Fujii, T. 1975.
On the relation between the homing migration of the western Alaska sockeye salmon Oncorhynchus nerka (Walbaum)

and oceanic conditions in the eastern Bering Sea. -- Mem. Fac. Fish. Hokkaido Univ. 22(2):99-191.

Sockeye Salmon - Mature / Bering Sea, Eastern Pacific Ocean / Open Ocean / Seasonal Timing, Direction Finding (General), Horizontal Distribution (Geographic), Route - Water Temperature, Salinity / Capture

537

Fujii, T., S. Abe, S. Saito, K. Masuda, and S. Nakane. 1961.
Exploratory fishing of salmon with gill nets of various mesh sizes and with a tramel net in Aleutian waters 1957. -- Bull. Fac. Fish. Hokkaido Univ. 12(2):129-137.

In Japanese; English abstract.

Pink Salmon, Sockeye Salmon, Chum Salmon - Adult / Bering Sea, Western Pacific Ocean, Central Pacific Ocean / Horizontal Distribution (Geographic) - Water Temperature / Capture

538

Fujii, T., K. Masuda, and T. Nishiyama. 1965.
Salmon population and hydrography on the high sea fishing grounds developed in the southwest on the Attu Islands in the North Pacific, during the early period of the fishing season. -- Bull. Fac. Fish. Hokkaido Univ. 16(3):154-163.

In Japanese; English abstract.

Sockeye Salmon, Chum Salmon, Pink Salmon - Adult / Western Pacific Ocean, Central Pacific Ocean / Open Ocean / Horizontal Distribution (Geographic) - Water Temperature / Seasonal Timing - Age / Capture

539

Fujii, T., K. Masuda, T. Nishiyama, G. Kobayashi, and G. Ahma. 1974.
A consideration on the relation between oceanographic conditions and distribution of Bristol Bay sockeye salmon Oncorhynchus nerka (Walbaum) in the eastern Bering Sea, with special reference to the poor return in 1973. -- Bull. Fac. Fish. Hokkaido Univ. 25(3):215-229.

In Japanese; English abstract.

Sockeye Salmon, Chum Salmon - Adult / Bering Sea, Western Alaska / Open Ocean / Horizontal Distribution (Geographic) - Water Temperature / Capture

540

Fujii, T., S. Yamamoto, K. Masuda, G. Kobayashi, and T. Nishiyama. 1968.
Inference on direction of movement of Pacific salmon in the Bering Sea from the relationship between the direction of gillnet set and the amount of catch. -- Bull. Fac. Fish. Hokkaido Univ. 18(4):306-316.

In Japanese; English abstract.

Pink Salmon, Chum Salmon, Sockeye Salmon - Mature / Bering Sea / Open Ocean / Direction / Capture

541

Fukataki, H. 1967.
Notes on migration of the masu salmon, Oncorhynchus masou (Brevoort), in the Japan Sea as determined by tagging. -- Bull. Jap. Sea Reg. Fish. Res. Lab. 18:1-11.

In Japanese; English abstract.

Masu Salmon - Adult / Sea of Japan, Japan / Inshore, Open Ocean / Route / Speed of Migration / Seasonal Timing / Tagging

542

Fukataki, H. 1968.
A record of the chinook salmon, Oncorhynchus tschawytscha (Walbaum), caught in the offshore region of the Japan Sea. -- Bull. Jap. Sea Reg. Fish. Res. Lab. 20:87-90.

In Japanese.

Chinook Salmon - Adult / Sea of Japan / Open Ocean / Horizontal Distribution (Geographic)

543

Fukataki, H. 1968.
Records of the southernmost range of the chinook salmon, Oncorhynchus tshawytscha (Walbaum), in the Japan Sea, with special consideration on their origins. -- Bull. Jap. Sea Reg. Fish. Res. Lab. 19:29-41.

In Japanese; English abstract.

Chinook Salmon - Mature / Sea of Japan, Japan / Inshore / Horizontal Distribution (Geographic)

544

Fukataki, H. 1970.
Further studies on migration of the masu salmon, *Oncorhynchus masou* (Brevoort), in the Japan Sea as determined by tagging. -- Bull. Jap. Sea Reg. Fish. Res. Lab. 22:1-14.

Masu Salmon - Immature, Mature / Sea of Japan, Japan / Inshore, Open Ocean / Route, Speed of Migration / Tagging

545

Fukataki, H., and M. Kato. 1974.
Natal stream areas and offshore distribution of the pink salmon *Oncorhynchus gorbuscha* (Walbaum), inhabiting the Japan Sea as determined by tagging. -- Bull. Jap. Sea Reg. Fish. Res. Lab. 25:1-37.

In Japanese; English abstract.

Pink Salmon - Adult / Sea of Japan, Sea of Okhotsk / Inshore, Open Ocean / Route / Tagging

546

Fukuhara, F.M. 1971.
An analysis of the biological and catch statistics of the Japanese mothership salmon fishery. -- Ph.D. thesis. -- University of Washington, Seattle, Washington. -- 106p.

Sockeye Salmon - Adult / Pacific Ocean (General) / Open Ocean / Horizontal Distribution (Geographic) / Capture

547

Fukuhara, F.M., S. Murai, J.J. LaLanne, and A. Sribhibhadh. 1962.
Continental origin of red salmon as determined from morphological characters. -- Int. North Pac. Fish. Comm. Bull. 8:15-109.

Sockeye Salmon / Pacific Ocean (General) / Stock Identification - Morphometrics and Meristics

548

Galbreath, J.L. 1965.
Timing of Willamette River spring chinook salmon through the lower Columbia River. -- Res. Briefs Fish Comm. Oreg. 11(1):29-41.

Chinook Salmon - Mature / Oregon / River / Seasonal Timing / Marking

549

Galbreath, J.L. 1966.
Timing of tributary races of chinook salmon through the lower Columbia River based on analysis of tag recoveries. -- Res. Briefs Fish Comm. Oreg. 12(1):58-80.

Chinook Salmon - Mature / Oregon / River / Route - Time of Year / Seasonal Timing - Genetic Aspects / Tagging

550

Ganssle, D. 1966.
Fishes and decapods of the San Pablo and Suisan Bays. Pp.64-94 *in* D.W. Kelley (ed.). Ecological studies of the Sacramento-San Joaquin estuary. -- Calif. Dep. Fish Game Fish Bull. 133.

Chinook Salmon - Juvenile / California / River, Estuary / Seasonal Timing

551

Gard, R. 1973.
Travel time and influencing factors for migrating adult sockeye salmon in Karluk River, Alaska. -- Trans. Am. Fish. Soc. 102(4):723-727.

Sockeye Salmon - Mature / Central Alaska / River / Speed of Migration - Population Density, Time of Year, Weather / Tagging

552

Gardner, M.L.G. 1971.
Recent changes in the movements of adult salmon *Salmo salar* L. in the Tay-Tummel-Garry system, Scotland. -- J. Fish Biol. 3:83-96.

Atlantic Salmon - Mature, Kelt / River / Seasonal Timing - Water Temperature / Count

553

Gardner, M.L.G. 1976.
A review of factors which may influence the sea-age and maturation of Atlantic salmon *Salmo salar* L. -- J. Fish Biol. 9:289-327.

Atlantic Salmon - Mature / River / Seasonal Timing - Genetic Aspects, Age / Initiation of Homing Migration

554

Garrison, R.L. 1965.
Coho smolts in ninety days. -- Prog. Fish Cult. 27(4):219-220.

Coho Salmon - Fingerling, Smolt / Smoltification - Age, Size and Growth

555

Gaudet, D.M., and G. Schaefer. 1982.
Migrations of salmon in Norton Sound, Alaska determined by tagging in 1978-1979. -- Alaska Dep. Fish Game Inf. Leafl. 198:58p.

Chum Salmon, Pink Salmon, Chinook Salmon - Mature / Western Alaska / Inshore / Route, Direction / Tagging

556

Gauley, J.E., R.E. Anas, and L.L. Schlotterbeck. 1958.
Downstream movement of salmonids at Bonneville Dam. -- U.S. Fish Wildl. Serv. Spec. Sci. Rep. Fish. 236:11p.

Chinook Salmon - Fingerling / Steelhead Trout, Sockeye Salmon, Coho Salmon - Juvenile / Washington, Oregon / River, Artificial Obstruction / Diel Timing - Time of Year, Turbidity

557

Gerbilsky, N.L. 1960.
The question of the migratory impulse in connection with the analysis of intraspecific biological groups. -- Tr. Soveshch. Iktiol. Kom. Akad. Nauk. SSSR. 8:142-152 (Fish. Res. Board Can. Transl. Ser. 260).

Salmon (General) / Initiation of Homing Migration - Pituitary System / Initiation of Downstream Migration - Pituitary System, Thyroid System / Migration (General)

558

Gibson, F.A. 1953.
Movements of salmon around Ireland. 2. from Baginbun, County Wexford (1949-1951). -- Proc. Roy. Ir. Acad. 55B:195-208.

Atlantic Salmon - Mature / Southern Europe / Inshore / Route, Speed of Migration / Tagging

559

Gibson, G., C. Junge, R. Michimoto, and F. Young. 1979.
Passage problems of adult Columbia River chinook salmon and steelhead, 1973-78. -- U.S. Army Corps Eng. North Pac. Div. Fish. Eng. Res. Program Prog. Rep. 5:55-78.

Steelhead Trout, Chinook Salmon - Mature / Washington, Oregon / Artificial Obstruction, Reservoir or Impoundment, River / Speed of Migration - Reservoirs and Impoundments, Obstruction, Time of Year / Pattern - Obstruction / Tagging, Marking

560

Gibson, R.J. 1978.
The behavior of juvenile Atlantic salmon (*Salmo salar*) and brook trout (*Salvelinus fontinalis*) with regard to temperature and to water velocity. -- Trans. Am. Fish Soc. 107(5):703-712.

Atlantic Salmon - Fingerling / Preference - Current / Behaviour - Water Temperature / Laboratory Study

561

Gilbert, C.H. 1917.
Contributions to the life-history of the sockeye salmon. Paper no. 4. -- Rep. B.C. Commissioner Fish. 1917:Q33-80.

Sockeye Salmon - Mature / Southern British Columbia / River / Straying

562

Gilbert, C.H. 1921.
Contributions to the life-history of the sockeye salmon. Paper no. 7. -- Rep. B.C. Commissioner Fish. 1921:W15-64.

Sockeye Salmon - Mature / Southern British Columbia / Estuary / Seasonal Timing

563

Gilbert, C.H. 1922.
The salmon of the Yukon River. -- Bull. Bur. Fish. (U.S.) 38:317-332.

Chum Salmon, Chinook Salmon - Mature / Western Alaska, Yukon / River / Speed of Migration, Route

564

Gilbert, C.H. 1923.
Experiments in tagging adult red salmon, Alaska Peninsula fisheries reservation, summer of 1922. -- Bull. Bur. Fish. (U.S.) 39:39-50.

Sockeye Salmon - Mature / Western Alaska, Southwest Alaska / Inshore / Route / Tagging

565

Gilbert, C.H., and W.H. Rich. 1925.
Second experiment in tagging salmon in the Alaska Peninsula fisheries reservation, summer of 1923. -- Bull. Bur. Fish. (U.S.) 42:27-75.

Sockeye Salmon, Chum Salmon, Pink Salmon - Mature / Central Alaska, Western Alaska / Inshore / Speed of Migration, Route / Homing / Tagging

566

Gilbert, C.H., and W.H. Rich. 1927.
Investigations concerning red-salmon runs to the Karluk River, Alaska. -- Bull. Bur. Fish. (U.S.) 43:1-69.

Sockeye Salmon - Mature, Juvenile / Central Alaska / River / Seasonal Timing

567

Gilhousen, P. 1960.
Migratory behavior of adult Fraser River sockeye. -- Int. Pac. Salmon Fish. Comm. Prog. Rep. 7:78p.

Sockeye Salmon - Mature / Southern British Columbia / Inshore, River, Estuary / Route, Seasonal Timing - Water Temperature, Genetic Aspects / Initiation of Stream Entry - Water Level and Flow Rate / Pattern, Speed of Migration

568

Gilhousen, P. 1980.
Energy sources and expenditures in Fraser River sockeye salmon during their spawning migration. -- Int. Pac. Salmon Fish. Comm. Bull. 22:51p.

Sockeye Salmon - Mature / Southern British Columbia / Inshore, River, Tributary / Organ Systems (General), Digestive System - Physiological and Biochemical Aspects (Stage of Migration) / Energetics

569

Glagoleva, T.P. 1970.
Blood picture of young Baltic salmon at different stages of smoltification. -- Tr. Molodykh Uch. Vses. Nauchno-Issled. Inst. Morsk. Rybn. Khoz. Okeanogr. 4:60-75 (Fish. Res. Board Can. Transl. Ser. 2157).

Atlantic Salmon - Fingerling, Smolt / Iceland and Northern Europe / Smoltification / Circulatory System - Physiological and Biochemical Aspects (Time of Year)

570

Glova, G.J., and J.E. McInerney. 1977.
Critical swimming speeds of coho salmon (Oncorhynchus kisutch) fry to smolt stages in relation to salinity and temperature. -- J. Fish. Res. Board Can. 34(1):151-154.

Coho Salmon - Fry, Fingerling, Smolt / Locomotory System - Salinity, Water Temperature / Migration (General)

571

Godfrey, H. 1962.
Rapporteur's report on coho and chinook salmon, 1961. -- Fish. Res. Board Can. Manuscr. Rep. Biol. Stn. 735:75p.

Coho Salmon, Chinook Salmon - Immature, Mature / Pacific Ocean (General) / Inshore, Open Ocean / Route, Seasonal Timing, Vertical Distribution / Horizontal Distribution (Geographic) - Water Temperature, Food Availability

572

Godfrey, H. 1965.
Salmon of the North Pacific Ocean: Part IX. Coho, chinook and masu salmon in offshore waters. 1. Coho salmon in offshore waters. -- Int. North Pac. Fish. Comm. Bull. 16:1-39.

Coho Salmon - Immature, Mature / Pacific Ocean (General) / Open Ocean / Seasonal Timing, Horizontal Distribution (Geographic), Vertical Distribution, Route / Tagging, Capture

573

Godfrey, H. 1968.
Review of information obtained from the tagging and marking of chinook and coho salmon in coastal waters of

Canada and the United States. -- Fish. Res. Board Can. Manuscr. Rep. Ser. 953:172p.

Chinook Salmon, Coho Salmon - Mature, Immature / Southeastern Alaska, Northern British Columbia, Southern British Columbia, Washington, Oregon, California / Inshore / Route, Seasonal Timing / Tagging

574

Godfrey, H. 1968.
Some observations on juvenile marine chum, chinook, and coho salmon taken in waters adjacent to Georgia Strait in 1965. -- Fish. Res. Board Can. Manuscr. Rep. Ser. 955:19p.

Coho Salmon, Chinook Salmon, Chum Salmon - Immature / Southern British Columbia / Inshore / Pattern, Route

575

Godfrey, H. 1969.
Chinook and coho salmon hatchery evaluation studies: eighth progress report. -- Fish. Res. Board Can. Manuscr. Rep. Ser. 1053:42p.

Coho Salmon, Chinook Salmon - Mature / Oregon, Washington, Northern British Columbia, Southern British Columbia, Southeastern Alaska / Inshore / Route / Marking

576

Godfrey, H. 1969.
Columbia River hatchery fall chinook salmon in the west coast of Vancouver Island troll fishery: seasonal trends in number, age and size, 1964-67. -- Fish. Res. Board Can. Manuscr. Rep. Ser. 1072:39p.

Chinook Salmon - Mature / Washington, Southern British Columbia / Inshore / Route, Seasonal Timing

577

Godfrey, H. 1970.
The seasonal occurrences of coho salmon from United States hatcheries in the troll fishery off the west coast of Vancouver Island in 1967 and 1968. -- Fish. Res. Board Can. Manuscr. Rep. Ser. 1077:10p.

Coho Salmon - Mature / Southern British Columbia, Washington / Inshore / Seasonal Timing / Capture

578

Godfrey, H., and E.A.R. Ball. 1974.
Data record, with comments, fall and winter fishing for juvenile salmon in Georgia Strait 1972-73. -- Fish. Res. Board Can. Manuscr. Rep. Ser. 1294:59p.

Coho Salmon, Chinook Salmon - Immature / Southern British Columbia / Inshore / Route / Tagging

579

Godfrey, H., K.A. Henry, and S. Machidori. 1975.
Distribution and abundance of coho salmon in offshore waters of the North Pacific Ocean. -- Int. North Pac. Fish. Comm. Bull. 31:80p.

Coho Salmon - Immature, Mature / Pacific Ocean (General) / Open Ocean / Horizontal Distribution (Geographic) - Water Temperature, Current, Food Availability / Seasonal Timing, Vertical Distribution, Speed of Migration / Route / Tagging, Capture

580

Godfrey, H., W.R. Hourston, J.W. Stokes, and F.C. Withler. 1954.
Effects of a rock slide on Babine River salmon. -- Bull. Fish. Res. Board Can. 101:100p.

Sockeye Salmon, Pink Salmon - Mature / Northern British Columbia, River / Natural Obstruction / Migration (General), Seasonal Timing / Speed of Migration - Obstruction / Tagging, Count

581

Godin, J.G., P.A. Dill, and D.E. Drury. 1974.
Effects of thyroid hormones on behavior of yearling Atlantic salmon (Salmo salar). -- J. Fish. Res. Board Can. 31(11):1787-1790.

Atlantic Salmon - Fingerling / Locomotory System, Initiation of Downstream Migration, Behaviour - Thyroid System / Taxis - Current (Thyroid System) / Laboratory Study

582

Godin, J.G.J. 1979.
Diel rhythms of behavior in juvenile pink salmon (Oncorhynchus gorbuscha, Walbaum). -- Ph.D. thesis. -- University of British Columbia, Vancouver, British Columbia.

Pink Salmon - Alevin / Pink Salmon - Fry / River, Estuary / Diel Timing / Behaviour, Vertical Distribution - Time of Day

583

Godin, J.G.J. 1980.
Ontogenic changes in the daily rhythms of swimming activity and of vertical distribution in juvenile pink salmon (Oncorhynchus gorbuscha Walbaum). -- Can. J. Zool. 58(5):745-753.

Pink Salmon - Fry / Taxis - Light Intensity / Behaviour, Vertical Movement / Laboratory Study

584

Godin, J.G.J. 1980.
Temporal aspects of juvenile pink salmon (Oncorhynchus gorbuscha Walbaum) emergence from a simulated gravel redd. -- Can. J. Zool. 58(5):735-744.

Pink Salmon - Alevin / Diel Timing - Water Temperature / Laboratory Study

585

Godin, J.G.J. 1982.
Migrations of salmonid fishes during early life history phases: daily and annual timing. Pp.22-50 in E.L. Brannon and E.O. Salo (ed.). Proceedings of the Salmon and Trout Migratory Behavior Symposium. -- School of Fisheries, University of Washington, Seattle, Washington.

Salmon (General) - Alevin / Vertical Movement, Pattern, Behaviour, Diel Timing, Taxis, Migration (General), Speed of Migration, Initiation of Downstream Migration, Direction, Seasonal Timing

586

Godin, J.J. 1981.
Circadian rhythm of swimming activity in juvenile pink salmon (Oncorhynchus gorbuscha). -- Mar. Biol. 64:341-349.

Pink Salmon - Fry / Locomotory System - Time of Day (Light Intensity) / Migration (General)

587

Gorbman, A., W.W. Dickhoff, J.L. Mighell, E.F. Prentice, and F.W. Waknitz. 1982.
Morphological indices of developmental progress in the

parr-smolt coho salmon, Oncorhynchus kisutch. -- Aquaculture 28(1/2):1-19.

Coho Salmon - Fingerling, Smolt / Washington / Smoltification, Skeletal and Integumentary System - Morphological Aspects

588

Gordon, R.N. 1965.
Fisheries problems associated with hydroelectric development. -- Can. Fish Cult. 35:17-36.

Salmon (General) / Artificial Obstruction / Migration (General) - Obstruction

589

Gordon, R.N., R.A. Crouter, and J.S. Nelson. 1960.
The fish facilities at the Whitehorse Rapids power development, Yukon Territory. -- Can. Fish Cult. 27:43-56.

Chinook Salmon - Mature / Yukon / River, Artificial Obstruction / Seasonal Timing / Speed of Migration - Obstruction / Count

590

Gorshkova, G.V., and S.V. Gorshkov. 1977.
The residual sockeye, Oncorhynchus nerka, from Lake Azabach'ye, Kamchatka. -- J. Ichthyol. 17(2):196-200.

Sockeye Salmon - Residual, Mature / Eastern Kamchatka to Chuchuki Peninsula / Lake, Tributary / Homing

591

Grant, W.S., G.B. Milner, and P. Krasnowski. 1980.
Use of biochemical genetic variants for identification of sockeye salmon (Oncorhynchus nerka) stocks in Cook Inlet, Alaska. -- Can. J. Fish. Aquat. Sci. 37(8):1236-1247.

Sockeye Salmon / Central Alaska / Stock Identification - Electrophoresis and Serology

592

Grau, E.G. 1982.
Is the lunar cycle a factor timing the onset of salmon migration? Pp.184-189 in E.L. Brannon and E.O. Salo (ed.). Proceedings of the Salmon and Trout Migratory Behavior Symposium. -- School of Fisheries, University of Washington, Seattle, Washington.

Salmon (General) - Juvenile / Initiation of Downstream Migration, Smoltification - Thyroid System (Celestial Cues) / Initiation of Downstream Migration - Celestial Cues

593

Grau, E.G., W.W. Dickhoff, R.S. Nishioka, H.A. Bern, and L.C. Folmar. 1981.
Lunar phasing of the thyroxine surge preparatory to seaward migration of salmonid fish. -- Science 187:607-609.

Salmon (General) - Juvenile / Thyroid System - Physiological and Biochemical Aspects (Celestial Cues, Time of Year) / Smoltification

594

Grau, E.G., J.L. Specker, R.S. Nishioka, and H.A. Bern. 1982.
Factors determining the occurrence of the surge in thyroid activity in salmon during smoltification. -- Aquaculture 28(1/2):49-57.

Salmon (General) - Smolt / Smoltification - Thyroid System (Water Temperature, Celestial Cues) / Initiation of Downstream Migration - Celestial Cues

595

Gray, P.L., K.R. Florey, J.F. Koerner, and R.A. Marriott. 1978.
Coho salmon (Oncorhynchus kisutch) fluorescent pigment mark-recovery program for the Taku, Berners, and Chilkat Rivers in southeastern Alaska (1972-1974). -- Alaska Dep. Fish Game Inf. Leafl. 176:75p.

Coho Salmon - Adult / Southeastern Alaska / Inshore / Route, Seasonal Timing / Marking

596

Gray, R.H., and J.M. Haynes. 1977.
Depth distribution of adult chinook salmon (Oncorhynchus tshawytscha) in relation to season and gas-supersaturated water. -- Trans. Am. Fish. Soc. 106(6):617-620.

Chinook Salmon - Mature / Washington / River / Vertical Distribution - Pollutants, Time of Year / Sonic or Radio Tracking

597

Gray, R.H., and J.M. Haynes. 1979.
Spawning migration of adult chinook salmon (Oncorhynchus tshawytscha) carrying external and internal radio transmitters. -- J. Fish. Res. Board Can. 36(9):1060-1064.

Chinook Salmon - Mature / River / Sonic or Radio Tracking

598

Greene, C.W. 1904.
Physiological studies of the chinook salmon. -- Bull. Bur. Fish. (U.S.) 24:429-456.

Chinook Salmon - Mature / River / Osmoregulatory and Excretory System, Circulatory System - Physiological and Biochemical Aspects / Freshwater Adaptation / Laboratory Study

599

Greene, C.W. 1909.
The migration of salmon in the Columbia River. -- Bull. Bur. Fish. (U.S.) 29:129-148.

Chinook Salmon, Coho Salmon, Steelhead Trout - Mature / Washington / River, Estuary / Pattern, Speed of Migration / Tagging

600

Greene, C.W. 1910.
An experimental determination of the speed of migration of salmon in the Columbia River. -- J. Exp. Zool. 9:579-591.

Chinook Salmon, Coho Salmon, Steelhead Trout - Mature / Washington / River, Speed of Migration / Tagging

601

Greene, C.W. 1911.
The absorption of fats by the alimentary tract, with special reference to the function of the pyloric caeca in the king salmon, Oncorhychus tschawytscha. -- Trans. Am. Fish. Soc. 41:261-270.

Chinook Salmon - Mature / Digestive System - Morphological Aspects (Stage of Migration)

602

Greene, C.W. 1914.
The storage of fat in the muscular tissue of the king salmon and its resorption during the fast of the spawning migration. -- Bull. Bur. Fish. (U.S.) 33:69-138.

Chinook Salmon - Mature / River / Digestive System - Physiological and Biochemical Aspects (Stage of Migration) / Energetics / Laboratory Study

603

Greene, C.W. 1915.
On some quantitative physiological changes in the Pacific salmon during the run to the spawning grounds. -- Trans. Am. Fish. Soc. 45(1):5-12.

Chinook Salmon - Mature / River / Organ Systems (General) - Physiological and Biochemical Aspects (Stage of Migration) / Laboratory Study

604

Greene, C.W. 1917.
Changes in the nitrogenous extractives in the muscular tissue of the king salmon during the fast of the spawning migration. -- Ph.D. thesis. -- Yale University, New Haven, Connecticut.

Chinook Salmon - Mature / River / Organ Systems (General) - Physiological and Biochemical Aspects (Stage of Migration) / Freshwater Adaptation

605

Greene, C.W. 1926.
The physiology of the spawning migration. -- Physiol. Rev. 6:201-241.

Salmon (General) / Migration (General) - Physiological and Biochemical Aspects

606

Greer, G.L. 1976.
Avoidance by juvenile coho salmon of effluent contaminated surface waters in the vicinity of a coastal pulp mill in British Columbia. -- Fish. Mar. Serv. (Can.) Tech. Rep. 666:22p.

Coho Salmon - Immature / Preference - Pollutants / Laboratory Study

607

Greer, G.L., and G.J. Kosakoski. 1978.
Avoidance of seawater dilutions of kraft pulp mill effluent by seawater acclimated pink salmon fry. -- Fish. Mar. Serv. (Can.) Tech. Rep. 831:11p.

Pink Salmon - Fry / Preference - Pollutants / Laboratory Study

608

Gregory, R.W. 1962.
Discrimination of low water velocities by juvenile silver (*Oncorhynchus kisutch*) and chinook salmon (*Oncorhynchus tshawytscha*). -- Univ. Wash. Sch. Fish. Tech. Rep. 52:58p.

Coho Salmon, Chinook Salmon - Juvenile / Direction Finding (General), Behaviour / Laboratory Study

609

Gregory, R.W., and P.E. Fields. 1962.
Determination of the lower threshold for velocity orientation in young salmon. -- Bull. Ecol. Soc. Amer. 43(3):69.

Coho Salmon, Chinook Salmon - Juvenile / Direction Finding (General) - Current

610

Gribanov, V.I. 1948.
The coho salmon (*Oncorhynchus kisutch*) (Walbaum) - a biological sketch. -- Izv. Tikhookean. Nauchno-Issled. Inst. Rybn. Khoz. Okeanogr. 28:43-101 (Fish. Res. Board Can. Transl. Ser. 370).

Coho Salmon - Mature / Eastern Kamchatka to Chuchuki Peninsula, Sea of Okhotsk / Inshore, Estuary, River / Route, Speed of Migration, Seasonal Timing / Initiation of Stream Entry - Tide / Initiation of Upstream Migration - Weather, Water Level and Flow Rate

611

Gritsenko, O.F. 1981.
Population structure of pink salmon, *Oncorhynchus gorbuscha*. -- J. Ichthyol. 21(5):16-28.

Pink Salmon - Adult, Mature / Sea of Japan, Sea of Okhotsk, Japan, Eastern Kamchatka to Chuchuki Peninsula, Western Alaska, Southeastern Alaska, Central Alaska, Northern British Columbia, Southern British Columbia, Washington, Pacific Ocean (General) / River / Horizontal Distribution (Geographic) / Seasonal Timing

612

Groot, C. 1965.
On the orientation of young sockeye salmon (Oncorhynchus nerka) during their seaward migration out of lakes. -- Behaviour Suppl. 12:198p.

Sockeye Salmon - Smolt / Northern British Columbia, Southern British Columbia / Lake / Vertical Movement - Time of Day / Initiation of Downstream Migration, Seasonal Timing - Water Temperature, Weather / Locomotory System, Behaviour - Time of Day, Weather / Direction - Time of Day, Time of Year / Reverse Migration / Orientation - Celestial Cues, Influences (Miscellaneous) / Speed of Migration - Light Intensity / Hydroacoustics, Count, Laboratory Study, Tagging

613

Groot, C. 1972.
Migration of yearling sockeye salmon (Oncorhynchus nerka) as determined by time lapse photography of sonar observations. -- J. Fish. Res. Board Can. 29(10):1431-1444.

Sockeye Salmon - Smolt / Northern British Columbia / Lake / Speed of Migration - Time of Day / Direction, Route, Pattern, Diel Timing, Direction Finding (General) / Hydroacoustics

614

Groot, C. 1982.
Modifications on a theme - a perspective on migratory behavior of Pacific salmon. Pp.1-21 in E.L. Brannon and E.O. Salo (ed.). Proceedings of the Salmon and Trout Migratory Behavior Symposium. -- School of Fisheries, University of Washington, Seattle, Washington.

Pacific Salmon (General) / Migration (General)

615

Groot, C., K. Simpson, I. Todd, P.D. Murray, and G.A. Buxton. 1975.
Movements of sockeye salmon (Oncorhynchus nerka) in the Skeena River estuary as revealed by ultrasonic tracking. -- J. Fish. Res. Board Can. 32(2):233-242.

Sockeye Salmon - Mature / Northern British Columbia / River, Estuary, Inshore / Route, Speed of Migration, Pattern - Tide, Current / Sonic or Radio Tracking

616

Groot, C., K. Simpson, C.E. Turner, and F. Nash. 1972.
Analysis of ultrasonic tracking records of adult sockeye salmon migration in Babine Lake. -- Fish. Res. Board Can. Tech. Rep. 335:143p.

Sockeye Salmon - Mature / Lake / Sonic or Radio Tracking

617

Groot, C., and W.L. Wiley. 1965.
Time-lapse photography of an ASDIC echo-sounder PPI-scope as a technique for recording fish movements during migration. -- J. Fish. Res. Board Can. 22(4):1025-1034.

Sockeye Salmon - Smolt / Northern British Columbia / Lake / Diel Timing, Speed of Migration, Direction / Hydroacoustics

618

Groves, A.B., G.B. Collins, and P.S. Trefethen. 1968.
Roles of olfaction and vision in choice of spawning site by homing adult chinook salmon (Oncorhynchus tshawytscha). -- J. Fish. Res. Board Can. 25(5):867-876.

Chinook Salmon - Mature / Washington / River / Direction Finding (General) - Odours, Visual images / Homing / Occlusion

619

Gudjonsson, T. 1953.
Marking of salmon in Iceland 1947-1951. -- Natturufraedingurinn 23:178-187.

In Danish; English abstract. Not seen.

Atlantic Salmon / Iceland and Northern Europe / Tagging

620

Gudjonsson, T. 1973.
Smolt rearing techniques, stocking, and tagged adult salmon recaptures in Iceland. -- Int. Atlantic Salmon Found. Spec. Publ. 4(1):227-235.

Atlantic Salmon - Mature / Iceland and Northern Europe / Straying / Tagging

621

Gudjonsson, T. 1978.
The Atlantic salmon in Iceland. -- Isl. Landbun. J. Agric. Res. Iceland 10(2):11-39.

Atlantic Salmon - Adult, Mature / Iceland and Northern Europe, Greenland / Inshore, Open Ocean, River / Route, Seasonal Timing / Tagging

622

Gwartney, L.A. 1969.
Frazer Lake sockeye investigations. -- Alaska Dep. Fish Game Inf. Leafl. 129:23p.

Sockeye Salmon - Smolt, Mature / Central Alaska / River, Lake / Diel Timing / Seasonal Timing, Initiation of Downstream Migration - Photoperiod, Water Temperature / Reverse Migration / Count

623

Hager, R.C., and C.W. Hopley. 1981.
A comparison of the effect of adult return timing of Cowlitz and Toutle hatchery coho on catch and escapement. -- Wash. Dep. Fish. Tech. Rep. 58:41p.

Coho Salmon - Adult, Mature / Washington, Oregon, California / Inshore, River / Seasonal Timing, Route - Genetic Aspects

624

Hahn, W.E. 1976.
Electroencephalography of the olfactory bulb in relation to prespawn homing. -- Experientia 32(9):1095-1097.

Salmon (General) - Mature / Direction Finding (General) - Odours / Olfactory System - Physiological and Biochemical Aspects

625

Hallock, R.J., R.F. Elwell, and D.H. Fry. 1970.
Migrations of adult king salmon Oncorhynchus tshawytscha in the San Joaquin Delta, as demonstrated by the use of sonic tags. -- Calif. Dep. Fish Game Fish Bull. 151:92p.

Chinook Salmon - Mature / California / River / Route, Pattern, Seasonal Timing / Initiation of Upstream Migration, Termination of Migration - Dissolved Gas Concentration, Pollutants, Water Temperature / Sonic or Radio Tracking

626

Hallock, R.J., G.H. Warner, and D.H. Fry. 1952.
California's part in a three state salmon fingerling marking program. -- Calif. Fish Game 38(3):301-332.

Coho Salmon, Chinook Salmon - Fingerling / California, Oregon, Washington / Marking

627

Hamilton, J.A.R., and F.J. Andrew. 1954.
An investigation of the effect of Baker Dam on downstream-migrant salmon. -- Int. Pac. Salmon Fish. Comm. Bull. 6:73p.

Sockeye Salmon, Coho Salmon - Juvenile / Washington / River, Artificial Obstruction, Reservoir or Impoundment / Seasonal Timing / Migration (General) - Obstruction / Count

628

Hanamura, N. 1967.
Salmon of the North Pacific Ocean: Part IV. Spawning populations of North Pacific salmon. 1. Sockeye salmon in the far east. -- Int. North Pac. Fish. Comm. Bull. 23:1-7.

Sockeye Salmon - Mature / Eastern Kamchatka to Chuchuki Peninsula, Sea of Okhotsk / River / Seasonal Timing

629

Hanavan, M.G., and G.K. Tanonaka. 1959.
Experimental fishing to determine distribution of salmon in the North Pacific Ocean and Bering Sea, 1956. -- U.S. Fish Wildl. Serv. Spec. Sci. Rep. Fish. 302:22p.

Steelhead Trout, Chinook Salmon, Sockeye Salmon, Chum Salmon, Coho Salmon - Adult / Bering Sea, Eastern Pacific Ocean, Central Pacific Ocean / Open Ocean / Horizontal Distribution (Geographic) - Water Temperature / Vertical Distribution - Weather

630

Hansen, P.M. 1965.
Report on recapture in Greenland waters of salmon tagged in rivers in America and Europe. -- Int. Comm. Northwest Atl. Fish. Redbook 1965(3):194-201.

Atlantic Salmon - Adult / Greenland, Atlantic Ocean (General) / Route / Tagging

631

Hansen, P.M. 1967.
Recaptures of tagged Atlantic salmon in Greenland waters in 1965 and some remarks about the Greenland salmon fishery. -- Int. Comm. Northwest Atl. Fish. Redbook 1966(3):181-189.

Atlantic Salmon - Adult / Greenland, Atlantic Ocean (General) / Route / Tagging

632

Hara, T.J. 1970.
An electrophysiological basis for olfactory discrimination in homing salmon: a review. -- J. Fish. Res. Board Can. 27(2):565-586.

Salmon (General) - Juvenile, Mature / Homing / Olfactory System - Physiological and Biochemical Aspects / Imprinting and Learning / Direction Finding (General) - Odours

633

Hara, T.J., and S.B. Brown. 1979.
Olfactory bulbar electrical responses of rainbow trout (Salmo gairdneri) exposed to morpholine during smoltification. -- J. Fish. Res. Board Can. 36(10):1186-1190.

Steelhead Trout - Fingerling / Olfactory System - Physiological and Biochemical Aspects / Imprinting and Learning / Direction Finding (General) - Odours / Laboratory Study

634

Hara, T.J., and S. Macdonald. 1975.
Morpholine as olfactory stimulus in fish. -- Science 187:81-82.

Salmon (General) / Olfactory System - Physiological and Biochemical Aspects

635

Hara, T.J., and S. Macdonald. 1976.
Olfactory responses to skin mucous substances in rainbow trout Salmo gairdneri. -- Comp. Biochem. Physiol. 54A(1):41-44.

Steelhead Trout / Olfactory System - Physiological and Biochemical Aspects / Direction Finding (General) - Pheromones

636

Hara, T.J., K. Ueda, and A. Gorbman. 1965.
Electroencephalographic studies of homing salmon. -- Science 149:884-885.

Coho Salmon, Chinook Salmon - Mature / Direction Finding (General) - Odours / Olfactory System - Physiological and Biochemical Aspects / Laboratory Study

637

Harache, Y., G. Boeuf, and P. Lasserre. 1980.
Osmotic adaptation of Oncorhynchus kisutch Walbaum: III. Survival and growth of juvenile coho salmon transferred to sea water at various times of the year. -- Aquaculture 19(3):253-274.

Coho Salmon - Fingerling / Seawater Adaptation, Osmoregulatory and Excretory System - Physiological and Biochemical Aspects (Time of Year) / Laboratory Study

638

Harak, D.L., and H.A. Tanner. 1964.
The use of vertical gill nets in studying fish depth distribution, Horsetooth Reservoir, Colorado. -- Trans. Am. Fish. Soc. 93(2):137-145.

Sockeye Salmon - Landlocked, Adult / Colorado, Idaho / Reservoir or Impoundment / Vertical Distribution - Water Temperature / Capture

639

Harden-Jones, F.R. 1968.
Fish migration. -- Edward Arnold Ltd, London, England. -- 325p.

Salmon (General) / Migration (General)

640

Hardy, C.J. (ed.). 1972.
Proceedings of the Quinnat salmon fishery symposium, 2-3 October 1971, Ashburton. -- N.Z. Mar. Dep. Fish. Tech. Rep. 83:298p.

Chinook Salmon / New Zealand / Migration (General)

641

Hare, G.M. 1974.
Atlantic salmon (Salmo salar) parasites as biological tags in the Miramichi River system, New Brunswick. -- Ph.D. thesis. -- University of New Brunswick, Fredricton, New Brunswick.

Atlantic Salmon / Atlantic Canada and United States / Stock Identification - Parasite Tags

642

Hare, G.M., and M.D.B. Burt. 1976.
Parasites as potential biological tags of Atlantic salmon (Salmo salar) smolts in the Miramichi River system, New Brunswick. -- J. Fish. Res. Board Can. 33(5):1139-1143.

Atlantic Salmon - Juvenile / Atlantic Canada and United States / Stock Identification - Parasite Tags

643

Harris, C.K., and R.L. Burgner. 1982.
The nature of spatial distribution of Pacific salmon (Oncorhynchus spp.) on the high seas as indicated by research catch data. Pp.228 in E.L. Brannon and E.O. Salo (ed.). Proceedings of the Salmon and Trout Migratory Behavior Symposium. -- School of Fisheries, University of Washington, Seattle, Washington.

Pacific Salmon (General) / Pacific Ocean (General) / Open Ocean / Geographic Distribution (Geographic)

644

Hart, C.E., G. Concannon, C.A. Fustish, and R.D. Ewing. 1981.
Seaward migration and gill (Na+K)-ATPase activity of spring chinook salmon in an artificial stream. -- Trans. Am. Fish. Soc. 110(1):44-50.

Chinook Salmon - Juvenile / Oregon / Artificial Obstruction, River / Osmoregulatory and Excretory System - Physiological and Biochemical Aspects (Size and Growth, Time of Year) / Smoltification, Seasonal Timing / Initiation of Downstream Migration - Osmoregulatory and Excretory System / Laboratory Study

645

Hartley, W.G., and J.D. Brayshaw. 1957.
Movements of salmon off the north-east coast of

England. -- Fish. Invest. Minist. Agric. Fish. (G.B.) Ser. 1 5(8):17p.

Atlantic Salmon - Mature / Southern Europe / Inshore / Route, Speed of Migration / Tagging

646

Hartman, G.F., B.C. Anderson, and J.C. Scrivener. 1982.
Seaward movement of coho salmon (Oncorhynchus kisutch) fry in Carnation Creek, an unstable coastal stream in British Columbia. -- Can. J. Fish. Aquat. Sci. 39(4):588-597.

Coho Salmon - Fry / Southern British Columbia / River / Seasonal Timing / Initiation of Downstream Migration - Water Level and Flow Rate, Aggressive Behaviour and Territoriality / Count

647

Hartman, G.F., T.G. Northcote, and C.C. Lindsey. 1962.
Comparison of inlet and outlet spawning runs of rainbow trout in Loon Lake, British Columbia. -- J. Fish. Res. Board Can. 19(2):173-200.

Steelhead Trout - Mature / Southern British Columbia / Lake, Tributary / Seasonal Timing, Diel Timing - Water Temperature / Count

648

Hartman, W.L., and R.L. Burgner. 1972.
Limnology and fish ecology of sockeye salmon nursery lakes of the world. -- J. Fish. Res. Board Can. 29(6):699-715.

Sockeye Salmon - Juvenile / Lake / Vertical Movement

649

Hartman, W.L., W.R. Heard, and B. Drucker. 1967.
Migratory behavior of sockeye salmon fry and smolts. -- J. Fish. Res. Board Can. 24(10):2069-2099.

Sockeye Salmon - Fry, Smolt / Central Alaska, Western Alaska, Northern British Columbia, Southern British Columbia / Tributary, River, Lake / Diel Timing - Time of Year / Initiation of Downstream Migration, Seasonal Timing - Size and Growth, Photoperiod, Water Temperature, Weather, Current / Schooling, Vertical Distribution, Behaviour, Speed of Migration, Migration (General) / Taxis - Photoperiod, Current

650

Hartman, W.L., and R.F. Raleigh. 1962.
Tributary homing of sockeye salmon at Brooks and Karluk Lakes, Alaska. -- Bull. Ecol. Soc. Am. 43(3):84.

Sockeye Salmon - Mature / Tributary / Homing

651

Hartman, W.L., and R.F. Raleigh. 1964.
Tributary homing of sockeye salmon at Brooks and Karluk Lakes, Alaska. -- J. Fish. Res. Board Can. 21(3):485-504.

Sockeye Salmon - Mature / Central Alaska / Lake, Tributary / Homing, Pattern, Straying / Displacement, Tagging

652

Hartman, W.L., C.W. Strickland, and D.T. Hoopes. 1962.
Survival and behavior of sockeye salmon fry migrating into Brooks Lake, Alaska. -- Trans. Am. Fish. Soc. 91(2):133-139.

Sockeye Salmon - Fry / Western Alaska / Tributary, Lake / Seasonal Timing, Pattern, Vertical Distribution, Behaviour, Schooling / Taxis - Light Intensity, Current / Diel Timing - Light Intensity, Time of Year (Photoperiod) / Schooling, Behaviour / Count

653

Hartt, A.C. 1962.
Movement of salmon in the North Pacific Ocean and Bering Sea as determined by tagging, 1956-1958. -- Int. North Pac. Fish. Comm. Bull. 6:157p.

Sockeye Salmon, Chum Salmon, Pink Salmon, Coho Salmon, Chinook Salmon, Steelhead Trout - Immature, Mature / Pacific Ocean (General) / Open Ocean / Route, Seasonal Timing / Tagging

654

Hartt, A.C. 1962.
Observations of pink salmon in the Aleutian Island area, 1956-1960. Pp.123-133 in N.J. Wilimovsky (ed.). Symposium on pink salmon. H.R. MacMillan Lectures in Fisheries, 1960. -- Institute of Fisheries, University of British Columbia, Vancouver, British Columbia.

Pink Salmon - Immature, Mature / Bering Sea / Inshore, Open Ocean / Route, Seasonal Timing

655

Hartt, A.C. 1966.
Migrations of salmon in the North Pacific Ocean and Bering Sea as determined by seining and tagging, 1959-1960. -- Int. North Pac. Fish. Comm. Bull. 19:141p.

Chum Salmon, Pink Salmon, Sockeye Salmon - Immature, Mature / Eastern Pacific Ocean, Bering Sea, Central Pacific Ocean, Western Pacific Ocean / Open Ocean / Route, Seasonal Timing / Speed of Migration - Time of Year / Capture, Tagging

656

Hartt, A.C. 1980.
Juvenile salmonids in the oceanic ecosystem - the critical first summer. Pp.25-57 in W.J. McNeil and D.C. Himsworth (ed.). Salmonid ecosystems of the North Pacific. -- Oregon State University Press, Corvallis, Oregon.

Pacific Salmon (General) - Immature / Pacific Ocean (General) / Open Ocean, Inshore / Horizontal Distribution (Geographic), Seasonal Timing, Route, Direction

657

Hartt, A.C., and W.F. Royce. 1966.
The ocean behavior of Pacific salmon. Pp.15 in N. Kawamoto (convener). Physiological basis of fish migration in the Pacific area. -- Proc. Pac. Sci. Congr. 11(7).

Pacific Salmon (General) - Adult / Direction Finding (General) - Current (Genetic Aspects)

658

Harvey, H.H. 1964.
Dissolved nitrogen as a tracer of fish movements. -- Verh. Int. Ver. Theor. Angew. Limnol. 15:947-951.

Sockeye Salmon - Juvenile / Southern British Columbia / Lake / Migration (General)

659

Harvey, H.H., and C.R. Bothern. 1972.
Compensatory swimming in the kokanee and sockeye salmon *Oncorhynchus nerka* (Walbaum). -- J. Fish Biol. 4:237-247.

Sockeye Salmon - Landlocked, Fingerling, Smolt / Vertical Distribution - Locomotory System, Behaviour / Laboratory Study

660

Harvie-Brown, J.A. 1901.
Further notes on Salmonidae. -- Ann. Scott. Nat. Hist. 1901:202-207.

Atlantic Salmon - Mature / Migration (General)

661

Harvie-Brown, J.A. 1901.
Notes on British Salmonidae. -- Ann. Scott. Nat. Hist. 1901:18-24,82-92.

Atlantic Salmon - Mature / Migration (General)

662

Hasler, A.D. 1954.
Odour perception and orientation in fishes. -- J. Fish. Res. Board Can. 11(2):107-129.

Salmon (General) - Mature / River / Direction Finding (General) - Odours

663

Hasler, A.D. 1956.
Perception of pathways by fishes in migration. -- Quart. Rev. Biol. 31(3):200-209.

Salmon (General) / Direction Finding (General) - Odours / Migration (General)

664

Hasler, A.D. 1960.
Guideposts of migrating fishes. -- Science 132:785-792.

Salmon (General) - Mature / Direction Finding (General) - Odours / Orientation - Celestial Cues

665

Hasler, A.D. 1960.
Homing orientation in migrating fishes. -- Ergeb. Biol. 23:94-115.

Pacific Salmon (General) / Open Ocean, River / Orientation - Celestial Cues / Direction Finding (General) - Odours

666

Hasler, A.D. 1966.
Underwater guideposts for migrating fishes. -- Biol. Colloq. 27:1-20.

Salmon (General) / Direction Finding (General)

667

Hasler, A.D. 1966.
Underwater guideposts: homing of salmon. -- University of Wisconsin Press, Madison, Wisconsin. -- 155p.

Salmon (General) - Mature / Direction Finding (General) - Odours / Orientation - Celestial Cues / Homing

668

Hasler, A.D. 1968.
Memory in homing of migratory fishes. Pp.247-255 in D. Ingle (ed.). The central nervous system and fish behavior. -- University of Chicago Press, Chicago, Illinois.

Salmon (General) / Direction Finding (General) - Odours / Homing, Memory

669

Hasler, A.D., and J.C. Cooper. 1976.
Chemical cues for homing salmon. -- Experientia 32(9):1091-1093.

Salmon (General) - Mature / Homing / Direction Finding (General) - Odours

670

Hasler, A.D., R.M. Horrall, A.B. Stasko, and A.E. Dizon. 1970.
Orientation cues and tracking of migrating salmonid fishes. -- Proc. Nat. Acad. Sci. U.S.A. 66:241-242.

Salmon (General) / Direction Finding (General), Pattern

671

Hasler, A.D., A.T. Scholz, and R.M. Horrall. 1978.
Olfactory imprinting and homing in salmon. -- Am. Sci. 66(3):347-355.

Salmon (General), Coho Salmon / Homing / Direction Finding (General) - Odours / Imprinting and Learning

672

Hasler, A.D., and W.J. Wisby. 1951.
Discrimination of stream odors by fishes and its relation to parent stream behavior. -- Am. Nat. 85:223-238.

Salmon (General) - Mature / River / Direction Finding (General) - Odours

673

Hatton, S.R., and G.H. Clark. 1942.
A second progress report on the Central Valley fisheries investigation. -- Calif. Fish Game 28(2):116-123.

Chinook Salmon - Juvenile / California / River / Seasonal Timing / Count

674

Hawkins, A.D., G.G. Urquhart, and W.M. Shearer. 1979.
The coastal movements of returning Atlantic salmon, Salmo salar (L.). -- Scott. Fish. Res. Rep. 15:13p.

Atlantic Salmon - Mature / Southern Europe / Inshore / Direction, Route, Direction Finding (General), Speed of Migration / Pattern - Tide / Initiation of Stream Entry / Sonic or Radio Tracking

675

Hayashi, S. 1971.
Biochemical studies on the skin of fish: II. Seasonal change of purine content of masu salmon from parr to smolt. -- Bull. Jap. Soc. Sci. Fish. 37(6):508-512.

Masu Salmon - Fingerling, Smolt / Skeletal and Integumentary System, Smoltification - Physiological and Biochemical Aspects, Morphological Aspects / Laboratory Study

676

Hayes, F.R. 1953.
Artificial freshets and other factors controlling the ascent and population of Atlantic salmon in the LaHave River, Nova Scotia. -- Bull. Fish. Res. Board Can. 99:47p.

Atlantic Salmon - Smolt, Mature / Atlantic Canada and United States / Estuary, River, Inshore / Diel Timing - Light Intensity, Water Temperature / Seasonal Timing - Age / Initiation of Stream Entry - Weather, Tide, Water Level and Flow Rate / Route / Tagging / Count

677

Haynes, J.M. 1978.
Movement and habitat studies of chinook salmon and white sturgeon. -- Ph.D. thesis. -- University of Minnesota, Minneapolis, Minnesota. -- 166p.

Chinook Salmon - Mature / River, Artificial Obstruction / Vertical Distribution - Dissolved Gas Concentration / Speed of Migration, Pattern - Obstruction / Sonic or Radio Tracking

678

Haynes, J.M., and R.H. Gray. 1980.
Influence of Little Goose Dam on upstream movements of adult chinook salmon. -- Fish. Bull. 78(1):185-190.

Chinook Salmon - Mature / Washington / River, Artificial Obstruction / Speed of Migration - Reservoirs and Impoundments / Sonic or Radio Tracking

679

Healey, M.C. 1967.
Orientation of pink salmon (Oncorhynchus gorbuscha) during early marine migration from Bella Coola River system. -- J. Fish. Res. Board Can. 24(11):2321-2338.

Pink Salmon - Immature / Northern British Columbia / Estuary, Inshore / Orientation, Direction Finding (General) - Time of Day, Celestial Cues / Schooling / Direction - Time of Day

680

Healey, M.C. 1972.
Individual behaviour and group behavior in sockeye salmon (Oncorhynchus nerka). -- Fish. Res. Board Can. Tech. Rep. 297:16p.

Sockeye Salmon - Fingerling / Behaviour / Laboratory Study

681

Healey, M.C. 1978.
The distribution, abundance, and feeding habits of juvenile Pacific salmon in the Georgia Strait, British Columbia. -- Fish. Mar. Serv. (Can.) Tech. Rep. 788:49p.

Coho Salmon, Chinook Salmon, Chum Salmon, Sockeye Salmon, Steelhead Trout, Pink Salmon - Immature / Southern

British Columbia / Inshore / Horizontal Distribution (Geographic) / Capture

682

Healey, M.C. 1980.
The ecology of juvenile salmon in Georgia Strait, British Columbia. Pp.203-229 in W.J. McNeil and D.C. Himsworth (ed.). Salmonid ecosystems of the North Pacific. -- Oregon State University Press, Corvallis, Oregon.

Pink Salmon, Sockeye Salmon, Coho Salmon, Chinook Salmon, Chum Salmon - Juvenile, Immature / Southern British Columbia / Estuary, Inshore / Route, Seasonal Timing, Horizontal Distribution (Geographic) - Food Availability

683

Healey, M.C. 1980.
Utilization of Nanaimo River estuary by juvenile chinook salmon, Oncorhynchus tshawytscha. -- Fish. Bull. 77(3):653-668.

Chinook Salmon - Fry, Juvenile / Southern British Columbia / River, Estuary / Pattern, Seasonal Timing / Initiation of Downstream Migration - Water Level and Flow Rate, Water Temperature, Tide / Capture, Count

684

Healey, M.C., and F.P. Jordan. 1982.
Observations on juvenile chum and chinook and spawning chinook in the Nanaimo River, British Columbia during 1975-1981. -- Can. Manuscr. Rep. Fish. Aquat. Sci. 1659:31p.

Coho Salmon, Chinook Salmon, Chum Salmon - Juvenile / Southern British Columbia / River / Seasonal Timing, Vertical Distribution, Pattern / Count

685

Healey, M.C., R.V. Schmidt, F.P. Jordan, and R.M. Hungar. 1977.
Young salmon in the Nanaimo area 1975. 1. Distribution and abundance. -- Fish. Res. Board Can. Manuscr. Rep. Ser. 1369:161p.

Chinook Salmon, Chum Salmon - Fry, Juvenile / Southern British Columbia / River, Estuary / Seasonal Timing, Initiation of Downstream Migration - Water Temperature, Water Level and Flow Rate, Tide / Pattern

686

Heard, W.R. 1964.
Phototactic behaviour of emerging sockeye salmon fry. -- Anim. Behav. 12:382-388.

Sockeye Salmon - Alevin, Fry / Western Alaska / Tributary / Diel Timing, Behaviour / Taxis - Light Intensity

687

Heard, W.R., and R.A. Crone. 1976.
Raising coho salmon from fry to smolts in estuarine pens, and returns of adults from two smolt releases. -- Prog. Fish Cult. 38(4):171-174.

Coho Salmon - Fingerling, Smolt / Southeastern Alaska / Smoltification, Seawater Adaptation / Preference - Salinity (Time of Year)

688

Hellawell, J.M., H. Leatham, and G.I. Williams. 1974.
The upstream migratory behaviour of salmonids in the River From, Dorset. -- J. Fish Biol. 6(6):729-744.

Atlantic Salmon - Mature / Southern Europe / River / Seasonal Timing, Initiation of Upstream Migration - Water Level and Flow Rate, Water Temperature / Diel Timing - Time of Year, Turbidity / Termination of Migration - Water Temperature

689

Helle, J.H. 1966.
Behavior of displaced adult pink salmon. -- Trans. Am. Fish. Soc. 95(2):188-195.

Pink Salmon - Mature / Central Alaska / Inshore, River / Homing - Water Level and Flow Rate / Displacement, Tagging

690

Helle, J.H. 1970.
Biological characteristics of intertidal and fresh-water spawning pink salmon at Olsen Creek, Prince William Sound, Alaska, 1962-63. -- U.S. Fish Wildl. Serv. Spec. Sci. Rep. Fish. 602:19p.

Pink Salmon - Mature / Central Alaska / River, Estuary / Seasonal Timing / Count

691

Helle, J.H., R.S. Williamson, and J.E. Bailey. 1964.
Intertidal ecology and life history of pink salmon at Olsen Creek, Prince William Sound, Alaska. -- U.S. Fish Wildl. Serv. Spec. Sci. Rep. Fish. 483:26p.

Pink Salmon - Mature / Central Alaska / River, Estuary / Seasonal Timing, Behaviour

692

Henderson, E.B., R.L. Saunders, and C.J. Kerswill. 1965.
Daily counts of Atlantic salmon at the Curventon and Camp Adams counting fences on the northwest Miramichi River, New Brunswick, from 1950 to 1963. -- Fish. Res. Board Can. Manuscr. Rep. Ser. (Biol.) 805:77p.

Atlantic Salmon - Mature / Atlantic Canada and United States / River / Seasonal Timing / Count

693

Hendricks, J.D. 1971.
Histological and histochemical changes occurring in the kidneys of coho salmon smolts (Oncorhynchus kisutch) upon transfer to hypertonic and hypotonic salt solutions. -- Ph.D. thesis. -- Colorado State University, Fort Collins, Colorado. -- 198p.

Coho Salmon - Smolt / Seawater Adaptation, Osmoregulatory and Excretory System - Physiological and Biochemical Aspects, Morphological Aspects

694

Henking, H. 1931.
Investigations of Salmonidae with particular attention to specific and racial questions. (Part II). -- Rapp. P.-V. Reun. Cons. Perm. Int. Explor. Mer 73:122p. (Fish. Res. Board Can. Transl. Ser. 1820).

Atlantic Salmon - Adult / Iceland and Northern Europe / Inshore / Route / Marking

695

Hennick, D.P. 1964.
Report of limited salmon tagging operations, north side Alaska Peninsula, 1961. -- Alaska Dep. Fish Game Inf. Leafl. 42:4p.

Chum Salmon, Sockeye Salmon - Mature / Western Alaska / Inshore / Route / Tagging

696

Henry, K.A. 1961.
Racial identification of Fraser River sockeye salmon (Oncorhynchus nerka, Walbaum) by means of scales and its applications to salmon management. -- Ph.D. thesis. -- University of Washington, Seattle, Washington. -- 206p.

Sockeye Salmon / Southern British Columbia / Stock Identification - Scale Analysis

697

Henry, K.A. 1961.
Racial identification of Fraser River sockeye salmon by means of scales and its applications to salmon management. -- Int. Pac. Salmon Fish. Comm. Bull. 12:97p.

Sockeye Salmon - Mature / Southern British Columbia / Inshore / Route, Speed of Migration, Seasonal Timing / Stock Identification - Scale Analysis

698

Henry, K.A., and A.R. Morgan. 1964.
Oregon coastal salmon and steelhead tagging programs. Part I. Tillamook Bay, 1953. II. Siletz River, 1954. -- Fish Comm. Oreg. Contrib. 28:62p.

Chinook Salmon, Chum Salmon, Steelhead Trout, Coho Salmon - Mature / Oregon / River, Estuary / Speed of Migration - Time of Year / Tagging

699

Herrmann, R.B. 1959.
Occurrence of juvenile pink salmon in a coastal stream south of the Columbia River. -- Res. Briefs Fish. Comm. Oreg. 7(1):81.

Pink Salmon / Oregon / Horizontal Distribution (Geographic)

700

Heyamoto, H. 1963.
Availability of small salmon off the Columbia River. -- Pac. Mar. Fish. Comm. Bull. 6:82-87.

Chinook Salmon, Coho Salmon - Immature / Washington / Inshore / Route / Tagging

701

Heyl, H.L. 1970.
Changes in the Corpuscles of Stannius during the spawning journey of Atlantic salmon (Salmo salar). -- Gen. Comp. Endocrinol. 14:43-52.

Atlantic Salmon - Mature / Estuary, River / Interrenal System - Morphological Aspects (Stage of Migration) / Laboratory Study

702

Heyl, H.L., and S.J. Carpenter. 1972.
Reversible changes in adrenal cortical cell morphology and plasma hydroxycorticosteroids during freshwater portion of spawning journey of Atlantic salmon (Salmo salar). -- J. Fish. Res. Board Can. 29(3):311-314.

Atlantic Salmon - Mature / River / Interrenal System - Physiological and Biochemical Aspects, Morphological Aspects (Stage of Migration) / Laboratory Study

703

Hikita, H. 1956.
Pacific salmon (genus: Oncorhynchus) known to occur in coasts and rivers within Hokkaido. -- Sci. Rep. Hokkaido Fish Hatchery 11:25-57.

In Japanese; English abstract.

Chum Salmon, Pink Salmon, Sockeye Salmon, Coho Salmon, Chinook Salmon, Masu Salmon / Japan / Horizontal Distribution (Geographic)

704

Hillas, A.B.E. 1906.
Record of salmon marking experiments in Ireland 1902-1905. -- Sci. Invest. Fish. Branch Irel. 1904(7):14-52.

Atlantic Salmon - Mature, Adult / Southern Europe / River, Inshore / Route, Straying / Tagging

705

Hirano, T., M. Morisawa, and K. Suzuki. 1978.
Changes in plasma and coelomic fluid composition of the mature salmon (Oncorhynchus keta) during freshwater adaptation. -- Comp. Biochem. Physiol. 61A:5-8.

Chum Salmon - Mature / River / Freshwater Adaptation, Osmoregulatory and Excretory System - Physiological and Biochemical Aspects (Stage of Migration) / Laboratory Study

706

Hirano, Y. 1953.
Migrating course of salmonoid fish in north-west areas of North Pacific as presumed by tag-experiments during the years 1917-42. 1. Dog-salmon (Oncorhynchus keta) and humpback-salmon (O. gorbuscha). -- Bull. Jap. Soc. Sci. Fish. 18(10):102-115.

In Japanese; English abstract.

Pink Salmon, Chum Salmon - Mature / Western Pacific Ocean, Bering Sea, Sea of Okhotsk, Japan, Eastern Kamchatka to Chuchuki Peninsula / Inshore, Open Ocean / Route / Tagging

707

Hiroi, O. 1970.
Morphological changes in the Corpuscles of Stannius of the chum salmon, Oncorhynchus keta, during migration and maturation. -- Bull. Fac. Fish. Hokkaido Univ. 21(3):179-192.

In Japanese; English abstract.

Chum Salmon - Juvenile, Immature, Mature / Interrenal System - Morphological Aspects (Stage of Migration) / Laboratory Study

708

Hiyama, Y., T. Taniuchi, K. Suyama, K. Ishioka, R. Sato, T. Kajihara, and T. Maiwa. 1967.
A preliminary experiment on the return of tagged chum salmon to the Otsuchi River, Japan. -- Bull. Jap. Soc. Sci. Fish. 33(1):18-19.

Chum Salmon - Mature / Japan / Direction Finding (General) - Visual images, Odours / Homing / Occlusion, Tagging

709

Hoar, W.S. 1938.
Miscellaneous notes. (Atlantic salmon and trout investigations, 1938. Vol. 12). -- Fish. Res. Board Can. Manuscr. Rep. Biol. Stn. 129(2):7p.

Atlantic Salmon - Mature / Atlantic Canada and United States / Inshore / Horizontal Distribution (Geographic) - Time of Year / Capture

710

Hoar, W.S. 1938.
Scale studies of the salmon of the Saint John district, 1938. (Atlantic salmon and trout investigations, 1938. Vol. 12). -- Fish. Res. Board Can. Manuscr. Rep. Biol. Stn. 129(1):55p.

Atlantic Salmon - Smolt, Immature, Mature / Atlantic Canada and United States / Estuary, Inshore / Pattern - Age, Influences (Miscellaneous) / Seasonal Timing - Age / Homing / Capture

711

Hoar, W.S. 1939.
Physiological factors involved in the smolt metamorphosis. (Atlantic salmon and trout investigations, Vol.16). -- Fish. Res. Board Can. Manuscr. Rep. Biol. Stn. 206(1):10p.

Atlantic Salmon - Fingerling, Smolt / Atlantic Canada and United States / Smoltification - Physiological and Biochemical Aspects, Thyroid System / Laboratory Study

712

Hoar, W.S. 1939.
The thyroid gland of the Atlantic salmon. -- J. Morphol. 65:257-295.

Atlantic Salmon - Fingerling / Thyroid System - Morphological Aspects (Time of Year) / Smoltification / Laboratory Study

713

Hoar, W.S. 1940.
Further studies of the smolt metamorphosis, 1940. (Atlantic salmon and trout investigations, 1940. Vol.19). -- Fish. Res. Board Can. Manuscr. Rep. Biol. Stn. 209(2):6p.

Atlantic Salmon - Fingerling, Smolt / Atlantic Canada and United States / Seawater Adaptation / Smoltification - Physiological and Biochemical Aspects, Morphological Aspects, Thyroid System / Laboratory Study

714

Hoar, W.S. 1940.
Moser River salmon and trout, 1940: an analysis of the catches and life histories. (Atlantic salmon and trout investigations, 1940. Vol.19). -- Fish. Res. Board Can. Manuscr. Rep. Biol. Stn. 209(1):36p.

Atlantic Salmon - Smolt, Mature / Atlantic Canada and United States / River / Seasonal Timing - Age, Water Level and Flow Rate / Initiation of Stream Entry - Water Level and Flow Rate

715

Hoar, W.S. 1941.
Analysis of the catches and life-histories of the Moser river salmon, 1941. (Atlantic salmon and trout investigations, 1941. Vol.22). -- Fish. Res. Board Can. Manuscr. Rep. Biol. Stn. 212(2):7p.

Atlantic Salmon - Mature / River, Estuary / Initiation of Stream Entry - Tide, Water Level and Flow Rate

716

Hoar, W.S. 1951.
The behaviour of chum, pink and coho salmon in relation to their seaward migration. -- J. Fish. Res. Board. Can. 8(4):241-263.

Chum Salmon, Pink Salmon - Fry / Coho Salmon - Fry, Smolt / Schooling, Voluntary Displacement, Behaviour, Direction Finding (General) / Taxis - Current (Water Temperature) / Vertical Distribution - Light Intensity / Initiation of Downstream Migration - Water Level and Flow Rate, Water Temperature / Laboratory Study

717

Hoar, W.S. 1953.
Control and timing of fish migration. -- Biol. Rev. 28:437-452.

Pacific Salmon (General) - Juvenile / Voluntary Displacement, Behaviour, Migration (General) / Smoltification - Physiological and Biochemical Aspects, Behaviour / Taxis - Current / Pacific Salmon (General) / Seasonal Timing / Migration (General) - Thyroid System

718

Hoar, W.S. 1954.
The behaviour of juvenile Pacific salmon, with particular reference to the sockeye (Oncorhynchus nerka). -- J. Fish. Res. Board Can. 11(1):69-97.

Chum Salmon - Fry / Sockeye Salmon - Fry, Smolt / Coho Salmon - Smolt / Tributary, River / Behaviour, Vertical Distribution / Preference - Light Intensity, Current / Direction / Pattern / Laboratory Study

719

Hoar, W.S. 1955.
Phototactic and pigmentary responses of sockeye salmon smolts following injury to the pineal organ. -- J. Fish. Res. Board Can. 12(1):178-185.

Sockeye Salmon - Fry, Smolt / Visual System - Physiological and Biochemical Aspects / Taxis - Light Intensity / Laboratory Study

720

Hoar, W.S. 1956.
The behaviour of migrating pink and chum salmon fry. -- J. Fish. Res. Board Can. 13(3):309-325.

Pink Salmon, Chum Salmon - Fry / Southern British Columbia / Taxis - Light Intensity, Current / Behaviour, Schooling, Direction Finding (General), Memory / Speed of Migration - Time of Day / Laboratory Study

721

Hoar, W.S. 1958.
Rapid learning of a constant course by travelling schools of juvenile Pacific salmon. -- J. Fish. Res. Board Can. 15(2):251-274.

Chum Salmon, Pink Salmon, Sockeye Salmon - Fry / Inshore, Open Ocean / Navigation / Memory, Imprinting and Learning, Behaviour / Laboratory Study

722

Hoar, W.S. 1958.
The evolution of migratory behaviour among juvenile salmon of the genus Oncorhynchus. -- J. Fish. Res. Board Can. 15(3):391-428.

Pink Salmon, Chum Salmon, Sockeye Salmon, Coho Salmon - Juvenile / Behaviour - Light Intensity, Current, Time of Day

/ Taxis - Light Intensity, Current / Direction Finding (General) - Salinity, Landmarks / Initiation of Downstream Migration, Schooling / Migration (General) - Evolution

723

Hoar, W.S. 1959.
Endocrine factors in the ecological adaptation of fishes. Pp.1-23 in A. Gorbman (ed.). Comparative endocrinology: Proceedings of the Columbia University Symposium on Comparative Endocrinology. -- J. Wiley and Sons, New York, New York.

Salmon (General) / Migration (General) - Endocrine System (General)

724

Hoar, W.S. 1963.
The endocrine regulation of migratory behavior in anadromous teleosts. -- Proc. Int. Congr. Zool. 16(3):14-20.

Salmon (General) / Smoltification, Migration (General) - Endocrine System (General)

725

Hoar, W.S. 1966.
Timing of the downstream migration of juvenile salmonids. Pp.7 In N. Kawamoto (convener). Physiological basis of fish migration in the Pacific area. -- Proc. Pac. Sci. Congr. 11(7).

Salmon (General) - Juvenile / Migration (General) - Physiological and Biochemical Aspects (Time of Year)

726

Hoar, W.S. 1976.
Smolt transformation: evolution, behavior, and physiology. -- J. Fish. Res. Board Can. 33(5):1233-1252.

Salmon (General) - Smolt / Iceland and Northern Europe / Smoltification - Evolution, Size and Growth, Age, Physiological and Biochemical Aspects, Morphological Aspects, Endocrine System (General), Pituitary System / Seawater Adaptation, Osmoregulatory and Excretory System - Physiological and Biochemical Aspects / Behaviour, Schooling

727

Hoar, W.S., and G.M. Bell. 1950.
The thyroid gland in relation to the seaward migration of Pacific salmon. -- Can. J. Res. Sec. D 28:126-136.

Pacific Salmon (General) / Sockeye Salmon, Chum Salmon, Pink Salmon, Coho Salmon, Chinook Salmon - Fry / Thyroid System - Morphological Aspects / Thyroid System - Physiological and Biochemical Aspects / Seawater Adaptation, Osmoregulatory and Excretory System - Thyroid System

728

Hoar, W.S., M.H.A. Keenleyside, and R.G. Goodall. 1957.
Reactions of juvenile Pacific salmon to light. -- J. Fish. Res. Board Can. 14(6):815-830.

Pink Salmon, Chum Salmon, Sockeye Salmon - Fry / Sockeye Salmon, Coho Salmon - Smolt / Taxis, Behaviour, Vertical Movement - Light Intensity / Laboratory Study

729

Hoar, W.S., D. MacKinnon, and A. Redlich. 1952.
Effects of some hormones on the behavior of salmon fry. -- Can. J. Zool. 30:273-286.

Chum Salmon, Coho Salmon - Juvenile / Behaviour, Schooling, Migration (General) - Endocrine System (General) / Laboratory Study

730

Hodgins, H.O. 1972.
Serological and biochemical studies in racial identification of fishes. Pp.198-208 _in_ R.C. Simon and P.A. Larkin (ed.). The stock concept in Pacific salmon. H.R. MacMillan Lectures in Fisheries, 1972. -- Institute of Animal Resource Ecology, University of British Columbia, Vancouver, British Columbia.

Salmon (General) / Stock Identification - Electrophoresis and Serology

731

Hodgins, H.O., W.E. Ames, and F.M. Utter. 1969.
Variants of lactate dehydrogenase isozymes in sera of sockeye salmon (_Oncorhynchus nerka_). -- J. Fish. Res. Board Can. 26(1):15-19.

Sockeye Salmon / Stock Identification - Electrophoresis and Serology

732

Hoffman, S.H. 1982.
Northern southeastern Alaska pink salmon (_Oncorhynchus_

gorbuscha) tagging investigations, 1977-1980. -- Alaska Dep. Fish Game Inf. Leafl. 196:55p.

Pink Salmon - Mature / Southeastern Alaska / Inshore / Seasonal Timing, Route / Tagging

733

Hopley, B. 1978.
Genetic effects on Toutle-Cowlitz coho studies on the Columbia River. Pp.103-122 in B.G. Shepherd and R.M.J. Ginetz (ed.). Proceedings of the 1977 Northeast Pacific Chinook and Coho Salmon Workshop. -- Fish. Mar. Serv. (Can.) Tech. Rep. 759.

Coho Salmon - Mature / Washington / River, Estuary / Seasonal Timing - Genetic Aspects

734

Horrall, R.M. 1981.
Behavioral stock-isolating mechanisms in Great Lakes fishes with special reference to homing and site imprinting. -- Can. J. Fish. Aquat. Sci. 38(12):1481-1496.

Pink Salmon, Coho Salmon - Juvenile / Homing, Imprinting and Learning / Direction Finding (General) - Odours

735

Horsted, Sv.A. 1971.
The Greenland salmon fishery and debate around it biologically illuminated. -- Tidsskr. Gron. 9:257-274 (Fish. Res. Board Can. Transl. Ser. 2016).

Atlantic Salmon - Immature / Greenland, Atlantic Ocean (General) / Route / Tagging

736

Hoshiai, G., and R. Sato. 1973.
Record of the pink salmon, Oncorhynchus gorbuscha, in the Akka River, Honshu, Japan. -- Jap. J. Ichthyol. 20(2):125-126.

Pink Salmon / Japan / Horizontal Distribution (Geographic)

737

Hourston, A.S., E.H. Vernon, and G.A. Holland. 1965.
The migration, composition, exploitation and abundance of odd-year pink salmon runs in and adjacent to the Fraser

River convention area. -- Int. Pac. Salmon Fish. Comm. Bull. 17:151p.

Pink Salmon - Mature / Southern British Columbia, Washington / Inshore / Route, Seasonal Timing / Capture, Tagging

738

Hourston, W.R., and J.W. Stokes. 1952.
Moricetown Falls biological survey - 1951. -- Can. Fish Cult. 13:22-32.

Coho Salmon, Chinook Salmon, Steelhead Trout, Pink Salmon, Sockeye Salmon / Northern British Columbia / River, Natural Obstruction / Reverse Migration, Route / Speed of Migration - Obstruction / Seasonal Timing, Diel Timing / Tagging

739

Houston, A.H. 1957.
Responses of juvenile chum, pink and coho salmon to sharp sea-water gradients. -- Can. J. Zool. 35:371-383.

Chum Salmon, Coho Salmon, Pink Salmon - Fry / Coho Salmon - Smolt / Behaviour, Preference, Direction Finding (General) - Salinity / Laboratory Study

740

Houston, A.H. 1959.
Locomotor performance of chum salmon fry (*Oncorhynchus keta*) during osmoregulatory adaptation to sea water. -- Can. J. Zool. 37:591-605.

Chum salmon - Fry / Seawater Adaptation, Osmoregulatory and Excretory System - Physiological and Biochemical Aspects / Locomotory System, Behaviour, Speed of Migration / Taxis - Current / Laboratory Study

741

Houston, A.H. 1959.
Osmoregulatory adaptation of steelhead trout (*Salmo gairdneri* Richardson) to sea water. -- Can. J. Zool. 37:729-748.

Steelhead Trout - Juvenile / Seawater Adaptation, Osmoregulatory and Excretory System - Physiological and Biochemical Aspects / Laboratory Study

742

Houston, A.H. 1960.
Variations in the plasma-level of chloride in hatchery-reared yearling Atlantic salmon during parr-smolt transformation and following transfer to seawater. -- Nature 184:632-633.

Atlantic Salmon - Smolt / Smoltification, Osmoregulatory and Excretory System, Seawater Adaptation - Physiological and Biochemical Aspects

743

Houston, A.H. 1961.
Influence of size upon the adaptation of steelhead trout (Salmo gairdneri) and chum salmon (Oncorhynchus keta) to sea water. -- J. Fish. Res. Board Can. 18(3):401-415.

Steelhead Trout - Smolt / Chum Salmon - Fry / Seawater Adaptation, Osmoregulatory and Excretory System - Physiological and Biochemical Aspects (Size and Growth)

744

Houston, A.H. 1964.
On passive features in the osmoregulatory adaptation of anadromous salmonids to seawater. -- J. Fish. Res. Board Can. 21(6):1535-1538.

Salmon (General) - Juvenile / Seawater Adaptation, Osmoregulatory and Excretory System - Physiological and Biochemical Aspects

745

Houston, A.H., and L.T. Threadgold. 1963.
Body fluid regulation in smolting Atlantic salmon. -- J. Fish. Res. Board Can. 20(6):1355-1369.

Atlantic Salmon - Fingerling, Smolt / Osmoregulatory and Excretory System, Smoltification - Physiological and Biochemical Aspects / Laboratory Study

746

Hout, J.L., H.D. Tait, and F.V. Thorsteinson. 1962.
An evaluation of fyke trapping as a means of indexing salmon escapements in turbid streams. -- U.S. Fish Wildl. Serv. Spec. Sci. Rep. Fish. 428:18p.

Sockeye Salmon - Mature / Central Alaska / River / Seasonal Timing, Pattern, Diel Timing, Reverse Migration / Count

747

Hreha, L.H. 1967.
The relationship between size of juvenile coho salmon and their time of migration from three Oregon reservoirs. -- Res. Briefs Fish. Comm. Oreg. 13(1):87-101.

Coho Salmon - Juvenile / Oregon / Reservoir or Impoundment / Seasonal Timing - Size and Growth / Tagging

748

Hubbs, C.L. 1946.
Wandering of pink salmon and other salmonid fishes into southern California. -- Calif. Fish Game 32(2):81-86.

Pink Salmon, Chinook Salmon, Steelhead Trout / California / Horizontal Distribution (Geographic)

749

Hunter, J.G. 1959.
Survival and production of pink and chum salmon in a coastal stream. -- J. Fish. Res. Board Can. 16(6):835-886.

Chum Salmon, Pink Salmon - Fry, Mature / Northern British Columbia / River / Seasonal Timing, Initiation of Stream Entry - Water Level and Flow Rate / Diel Timing, Vertical Distribution, Pattern / Count

750

Hunter, J.G. 1974.
Pacific salmon in Arctic Canada. -- Fish. Res. Board Can. Manuscr. Rep. Ser. 1319:8p.

Chinook Salmon, Pink Salmon, Chum Salmon, Sockeye Salmon - Mature / Arctic North America / River / Horizontal Distribution (Geographic), Straying

751

Huntsman, A.G. 1934.
Factors influencing return of salmon from the sea. -- Trans. Am. Fish. Soc. 64:351-355.

Atlantic Salmon - Mature / Inshore, Estuary / Initiation of Homing Migration / Initiation of Stream Entry - Water Temperature, Weather, Current

752

Huntsman, A.G. 1935.
Experiment in tagging adult salmon in 1935. (Margaree

salmon investigation Vol.7). -- Fish. Res. Board Can. Manuscr. Rep. Biol. Stn. 119(47):28p.

Atlantic Salmon - Mature / Atlantic Canada and United States / Estuary, Inshore / Route, Pattern / Tagging

753

Huntsman, A.G. 1936.
Return of salmon from the sea. -- Bull. Biol. Board Can. 51:20p.

Atlantic Salmon - Immature, Mature / Atlantic Canada and United States / Inshore, Estuary / Initiation of Stream Entry - Weather, Water Level and Flow Rate / Pattern - Salinity / Horizontal Distribution - Weather / Speed of Migration - Size and Growth / Non Migratory Movements, Vertical Distribution, Homing, Seasonal Timing / Capture

754

Huntsman, A.G. 1937.
"Migration" and "homing" of salmon. -- Science 85:313-314.

Salmon (General) / Homing

755

Huntsman, A.G. 1937.
Races and homing of salmon. -- Science 85:582-583.

Salmon (General) / Homing

756

Huntsman, A.G. 1938.
"Spawning urge", "homing instinct", and "waiting" in salmon return. -- Nature 141:421-422.

Atlantic Salmon - Mature / Homing, Initiation of Stream Entry, Migration (General)

757

Huntsman, A.G. 1938.
Sea behaviour in salmon: the case against an hereditary homing instinct. -- Salmon Trout Mag. 90:24-28.

Atlantic Salmon / Homing - Genetic Aspects

758

Huntsman, A.G. 1938.
Sea movements of Canadian Atlantic salmon kelts. -- J. Fish. Res. Board Can. 4(2):96-135.

Atlantic Salmon - Kelt / Atlantic Canada and United States / Estuary, River, Inshore / Route, Pattern / Tagging

759

Huntsman, A.G. 1939.
Migration and conservation of Atlantic salmon for Canada's Maritime provinces. Pp.32-44 in F.R. Moulton (ed.). The migration and conservation of salmon. -- Publ. Amer. Assoc. Adv. Sci. 8.

Atlantic Salmon - Adult / Atlantic Canada and United States / Estuary, Inshore / Route - Current / Migration (General)

760

Huntsman, A.G. 1939.
Races and homing instinct: a further paper. -- Salmon Trout Mag. 96:233-237.

Salmon (General) / Homing

761

Huntsman, A.G. 1939.
Salmon movement through the Margaree estuary. (Atlantic salmon and trout investigation, 1939. Vol.18). -- Fish. Res. Board Can. Manuscr. Rep. Biol. Stn. 208(16):7p.

Atlantic Salmon - Adult, Mature / Estuary, River / Initiation of Stream Entry - Water Level and Flow Rate / Non Migratory Movements

762

Huntsman, A.G. 1940.
Sea life of Atlantic salmon of the Margaree river. (Atlantic salmon and trout investigations, 1940. Vol.21). -- Fish. Res. Board Can. Manuscr. Rep. Biol. Stn. 211(18):76p.

Atlantic Salmon - Mature / Atlantic Canada and United States / Inshore, Estuary / Migration (General)

763

Huntsman, A.G. 1940.
The migrations of salmon kelts. (Atlantic salmon and

trout investigations, 1940. Vol.21). -- Fish. Res. Board Can. Manuscr. Rep. Biol. Stn. 211(17):8p.

Atlantic Salmon - Kelt / Atlantic Canada and United States / River, Estuary / Route, Pattern / Tagging

764

Huntsman, A.G. 1941.
The management of Moser River for salmon and trout. (Atlantic salmon and trout investigations, 1941. Vol.24). -- Fish. Res. Board Can. Manuscr. Rep. Biol. Stn. 214(18):45p.

Atlantic Salmon - Kelt, Immature, Mature / Atlantic Canada and United States / Estuary, Inshore / Route / Vertical Distribution - Salinity / Pattern, Initiation of Stream Entry - Tide, Weather, Water Level and Flow Rate, Salinity / Behaviour - Time of Day / Speed of Migration - Water Level and Flow Rate / Homing, Straying, Seasonal Timing / Tagging

765

Huntsman, A.G. 1942.
Factors determining salmon movement, Moser River, 1942. (Atlantic salmon and trout investigations, 1942. Vol.27). -- Fish. Res. Board Can. Manuscr. Rep. Biol. Stn. 329(24):16p.

Atlantic Salmon - Mature / Atlantic Canada and United States / River, Estuary / Initiation of Stream Entry, Seasonal Timing - Weather, Salinity, Water Temperature, Water Level and Flow Rate, Current / Termination of Migration, Reverse Migration - Water Temperature / Diel Timing - Light Intensity, Tide, Weather / Count

766

Huntsman, A.G. 1942.
Is the Margaree an early or a late river? (Atlantic salmon and trout investigations, 1942. Vol.27). -- Fish. Res. Board Can. Manuscr. Rep. Biol. Stn. 329(17):6p.

Atlantic Salmon - Mature / Atlantic Canada and United States / River, Estuary / Seasonal Timing / Initiation of Stream Entry - Water Level and Flow Rate, Weather

767

Huntsman, A.G. 1942.
Movement of salmon through the Margaree estuary. (Atlantic salmon and trout investigations, 1942. Vol.26). -- Fish. Res. Board Can. Manuscr. Rep. Biol. Stn. 328(16):10p.

Atlantic Salmon - Mature / Atlantic Canada and United States / Estuary, River / Seasonal Timing, Initiation of Stream Entry - Water Level and Flow Rate / Pattern / Tagging, Count

768

Huntsman, A.G. 1942.
Return of a marked salmon from a distant place. -- Science 95:381-382.

Atlantic Salmon - Adult / Atlantic Canada and United States / Inshore / Route

769

Huntsman, A.G. 1943.
Behaviour of salmon parr and smolt. (Atlantic salmon and trout investigations, 1943. Vol.29). -- Fish. Res. Board Can. Manuscr. Rep. Biol. Stn. 336(14):35p.

Atlantic Salmon - Fingerling, Smolt / Atlantic Canada and United States / River, Estuary / Initiation of Downstream Migration, Behaviour, Pattern, Non Migratory Movements, Seasonal Timing, Diel Timing

770

Huntsman, A.G. 1945.
Freshets and fish. -- Trans. Am. Fish. Soc. 75:257-266.

Atlantic Salmon - Mature / Atlantic Canada and United States / River, Estuary / Initiation of Stream Entry - Water Level and Flow Rate / Reverse Migration

771

Huntsman, A.G. 1945.
Migration of salmon parr. -- J. Fish. Res. Board Can. 6(5):399-402.

Atlantic Salmon - Fingerling / Atlantic Canada and United States / River, Estuary / Route, Pattern

772

Huntsman, A.G. 1945.
Salmon smolts and their migrations. (Atlantic salmon and trout investigations, 1945. Vol.33). -- Fish. Res. Board Can. Manuscr. Rep. Biol. Stn. 382(10):21p.

Atlantic Salmon - Smolt / Atlantic Canada and United States / River, Estuary / Smoltification, Speed of Migration, Pattern, Behaviour, Schooling / Initiation of

Downstream Migration - Water Temperature, Water Level and Flow Rate / Taxis - Current / Vertical Distribution - Light Intensity / Marking, Count

773

Huntsman, A.G. 1945.
Variable seaward migration of salmon. -- J. Fish. Res. Board Can. 6(3):311-325.

Atlantic Salmon - Kelt / Atlantic Canada and United States / River, Estuary, Inshore / Route / Tagging

774

Huntsman, A.G. 1946.
Minas Channel salmon fishery. (Atlantic salmon and trout investigations, 1946. Vol.34). -- Fish. Res. Board Can. Manuscr. Rep. Biol. Stn. 390(8):7p.

Atlantic Salmon - Mature / Atlantic Canada and United States / Inshore / Route, Horizontal Distribution (Geographic) - Salinity / Tagging

775

Huntsman, A.G. 1946.
Rationale of salmon migration. (Atlantic salmon and trout investigations, 1946. Vol.34). -- Fish. Res. Board Can. Manuscr. Rep. Biol. Stn. 390(2):7p.

Salmon (General) / Homing, Migration (General)

776

Huntsman, A.G. 1948.
Intermingling and use of salmon stocks of eastern Canada. (Atlantic salmon and trout investigations, 1948. Vol.39). -- Fish. Res. Board Can. Manuscr. Rep. Biol. Stn. 396(7):21p.

Atlantic Salmon - Mature / Atlantic Canada and United States / Inshore / Route / Tagging, Marking

777

Huntsman, A.G. 1948.
Migration of salmon in the sea. -- Salmon Trout Mag. 123:153-158.

Atlantic Salmon / Atlantic Canada and United States / Homing, Migration (General)

778

Huntsman, A.G. 1948.
Salmon and animal migration. -- Nature 161:300-302.

Atlantic Salmon - Juvenile, Adult / Migration (General)

779

Huntsman, A.G. 1950.
Factors which may affect migration: some examples from Canadian fish. -- Salmon Trout Mag. 130:227-239.

Atlantic Salmon / Migration (General), Homing

780

Huntsman, A.G. 1952.
Wandering versus homing in salmon. -- Salmon Trout Mag. 136:185-191.

Atlantic Salmon / Homing

781

Huntsman, A.G. 1954.
Salmon migration and the environment. -- Nature 174:215-217.

Atlantic Salmon / Migration (General)

782

Huntsman, A.G. 1962.
Method in ecology-ectology. -- Ecology 43(3):552-556.

Atlantic Salmon - Mature, Smolt / Atlantic Canada and United States / Estuary, River, Inshore / Behaviour, Pattern / Taxis - Current

783

Huntsman, A.G., and W.S. Hoar. 1939.
Resistance of Atlantic salmon to sea water. -- J. Fish. Res. Board Can. 4(5):409-411.

Atlantic Salmon - Fingerling, Smolt / Seawater Adaptation, Smoltification - Physiological and Biochemical Aspects / Laboratory Study

784

Huntsman, A.G., and R.R. Logie. 1938.
The influence of salinity on the distribution of salmon

in the Saint John region. (Atlantic salmon and trout investigations, 1938. Vol.13). -- Fish. Res. Board Can. Manuscr. Rep. Biol. Stn. 130(9):16p.

Atlantic Salmon - Mature / Atlantic Canada and United States / Inshore / Vertical Distribution, Horizontal Distribution (Geographic) - Salinity / Direction - Tide

785

Hurley, D.A., and W.L. Woodall. 1968.
Responses of young pink salmon to vertical temperature and salinity gradients. -- Int. Pac. Salmon Fish. Comm. Prog. Rep. 19:80p.

Pink Salmon - Fry / Preference - Salinity, Water Temperature / Seawater Adaptation / Laboratory Study

786

Hutton, J.R. 1937.
Wye parr and smolts: the inverse-ratio theory of river and sea life. -- Salmon Trout Mag. 87:119-123.

Atlantic Salmon / Migration (General)

787

Hutton, K.E. 1967.
Characteristics of the blood of adult pink salmon at three stages of maturity. -- Fish. Bull. 66(2):195-202.

Pink Salmon - Mature / Inshore, River / Circulatory system - Physiological and Biochemical Aspects (Stage of Migration) / Laboratory Study

788

Ichihara, T., T. Yonemori, and H. Asai. 1975.
Swimming behaviour of a chum salmon, Oncorhynchus keta, on the southern migration off Etorofu Island, the southern Kurile Islands. -- Bull. Far Seas Fish. Res. Lab. 13:63-77 (Fish. Mar. Serv. (Can.) Transl. Ser. 3942).

Chum Salmon - Mature / Western Pacific Ocean, Japan / Open Ocean, Inshore / Horizontal Distribution (Geographic) - Time of Day / Speed of Migration, Behaviour / Direction - Current / Vertical Distribution, Vertical Movement - Weather, Time of Day, Water Temperature, Food Availability / Sonic or Radio Tracking

789

Idler, D.R. 1973.
Hormones in the life of the Atlantic salmon. -- Int. Atlantic Salmon Found. Spec. Publ. 4(1):43-53.

Atlantic Salmon / Migration (General) - Endocrine System (General)

790

Idler, D.R., and I. Bitners. 1958.
Biochemical studies on sockeye salmon during spawning migration: II. Cholesterol, fat, protein, and water in the flesh of standard fish. -- Can. J. Biochem. Physiol. 36(8):793-798.

Sockeye Salmon - Mature / Southern British Columbia / Inshore, River, Tributary / Freshwater Adaptation / Digestive system, Organ Systems (General) - Physiological and Biochemical Aspects (Stage of Migration) / Energetics / Laboratory Study

791

Idler, D.R., and I. Bitners. 1959.
Biochemical studies on sockeye salmon during spawning migration: V. Cholesterol, fat, protein and water in the body of the standard fish. -- J. Fish. Res. Board Can. 16(2):235-241.

Sockeye Salmon - Mature / Southern British Columbia / Inshore, River, Tributary / Organ Systems (General) - Physiological and Biochemical Aspects (Stage of Migration) / Energetics, Freshwater Adaptation / Laboratory Study

792

Idler, D.R., and W.A. Clemens. 1959.
The energy expenditures of Fraser River sockeye salmon during the spawning migration to Chilko and Stuart Lakes. -- Int. Pac. Salmon Fish. Comm. Prog. Rep. 6:80p.

Sockeye Salmon - Mature / Southern British Columbia / Inshore, River, Tributary / Direction Finding (General), Digestive system - Physiological and Biochemical Aspects (Stage of Migration) / Energetics / Laboratory Study

793

Idler, D.R., U.H.M. Fagerlund, and H. Mayoh. 1956.
Olfactory perception in migrating salmon: I. L- Serine, a salmon repellant in mammalian skin. -- J. Gen. Physiol. 39:889-892.

Pacific Salmon (General) / Olfactory system - Physiological and Biochemical Aspects

794

Idler, D.R., J.R. McBride, R.E.E. Jonas, and N. Tomlinson. 1961.

Olfactory perception in migrating salmon: II. Studies on a laboratory bio-assay for home stream water and mammalian repellant. -- Can. J. Biochem. Physiol. 39:1575-1584.

Sockeye Salmon - Mature / River / Direction Finding (General) - Odours / Laboratory Study

795

Idler, D.R., A.P. Ronald, and P.J. Schmidt. 1959.

Biochemical studies on sockeye salmon during spawning migration: VII. Steroid hormones in plasma. -- Can. J. Biochem. Physiol. 37:1227-1238.

Sockeye Salmon - Mature / Inshore, River, Tributary / Freshwater Adaptation / Endocrine System (General) - Physiological and Biochemical Aspects (Stage of Migration) / Laboratory Study

796

Idler, D.R., and H. Tsuyuki. 1958.

Biochemical studies on sockeye salmon during spawning migration: I. Physical measurements, plasma cholesterol, and electrolyte levels. -- Can. J. Biochem. Physiol. 36(8):783-791.

Sockeye Salmon - Mature / Inshore, River, Tributary / Freshwater Adaptation / Organ Systems (General) - Physiological and Biochemical Aspects (Stage of Migration) / Energetics / Laboratory Study

797

Idyll, C.P. 1952.

Salt water tagging experiments on sockeye salmon (Oncorhynchus nerka, Walbaum). -- Ph.D. thesis. -- University of Washington, Seattle, Washington.

Not seen.

Sockeye Salmon / Tagging

798

Igarashi, H., and K. Zama. 1953.
Biochemical studies of the salmon, Oncorhynchus keta: I. The changes in the chemical components of the body tissues during the spawning migration. -- Bull. Jap. Soc. Sci. Fish. 18(11):6-10.

In Japanese; English abstract.

Chum Salmon - Mature / Japan / Estuary, River / Digestive system - Physiological and Biochemical Aspects (Stage of Migration) / Laboratory Study

799

Ihssen, P.E., H.E. Booke, J.M. Casselman, J.M. McGlade, N.R. Payne, and F.M. Utter. 1981.
Stock identification: materials and methods. -- Can. J. Fish. Aquat. Sci. 39(12):1838-1855.

Salmon (General) / Stock Identification - Morphometrics and Meristics, Scale Analysis, Electrophoresis and Serology

800

Iioka, C., J. Terajimi, K. Yamamoto, S. Ogawa, S. Sato, and Y. Nakamura. 1978.
An examination of the release of seawater-reared fingerlings. in Kaisui Shiiku Chigyo Honjo Shiken. -- Iwate Ken Suisan Shikenjo Hokoku-sho, Monoka, Japan. (Fish. Mar. Serv. (Can.) Transl. Ser. 4384:59p.).

Chum Salmon - Fry, Immature / Japan / Inshore, Estuary / Route, Pattern, Seasonal Timing / Marking

801

International Pacific Salmon Fisheries Commission. Pink Salmon Coordinating Committee. 1962.
A preliminary review of pertinent past tagging investigations on pink salmon and proposal for a co-ordinated research program for 1959. -- Fish. Res. Board Can. Manuscr. Rep. Ser. (Biol.) 729:17p.

Pink Salmon - Mature / Northern British Columbia, Southern British Columbia, Washington / Inshore / Route / Tagging

802

Irie, T., T. Kobayashi, and M. Osako. 1981.
Ecological studies on juveniles of chum and pink salmon during early ocean residence: I. Distribution and behavior

of the juveniles in Abashiri Bay and the adjacent waters. -- Bull. Hokkaido Reg. Fish. Res. Lab. 46:15-36.

In Japanese; English abstract.

Chum Salmon, Pink Salmon - Immature / Japan / Inshore / Pattern, Route, Schooling / Capture

803

Ishida, T. 1962.
Aspects of the marine biology of Asiatic pink salmon. Pp.135-139 in N.J. Wilimovsky (ed.). Symposium on pink salmon. H.R. MacMillan Lectures in Fisheries, 1960. -- Institute of Fisheries, University of British Columbia, Vancouver, British Columbia.

Pink Salmon - Adult / Pacific Ocean (General) / Open Ocean, Inshore / Horizontal Distribution (Geographic) - Water Temperature

804

Ishida, T. 1967.
An observation on the distribution, emigration, and abundance of Yamabe (Oncorhynchus masou) in a brook. -- Bull. Hokkaido Reg. Fish. Res. Lab. 33:1-8.

In Japanese; English abstract.

Masu Salmon - Juvenile / Japan / River / Pattern, Seasonal Timing / Marking

805

Ishida, T. 1967.
Salmon of the North Pacific Ocean: Part IV. Spawning populations of North Pacific salmon. 2. Pink salmon in the far east. -- Int. North Pac. Fish. Comm. Bull. 23:9-22.

Pink Salmon - Mature / Japan, Sea of Okhotsk, Eastern Kamchatka to Chuchuki Peninsula / Inshore, River / Seasonal Timing

806

Ishida, T., and K. Miyaguchi. 1959.
On the offshore distribution and stocks of pink salmon. -- Bull. Hokkaido Reg. Fish. Res. Lab. 20:84-103.

In Japanese; English abstract.

Pink Salmon - Adult / Pacific Ocean (General) / Inshore, Open Ocean / Horizontal Distribution (Geographic) / Capture / Stock Identification - Scale Analysis

807

Ito, S. 1972.
Notes on the offshore distribution of sockeye salmon with a large freshwater zone on scales. -- Bull. Far Seas Fish. Res. Lab. 7:125-135.

In Japanese; English abstract.

Sockeye Salmon - Immature / Western Pacific Ocean / Open Ocean / Route / Stock Identification - Scale Analysis

808

Ivlev, V.S. 1962.
Smoltification of salmon and its biological importance. -- Zh. Obshch. Biol. 23:72-73.

In Russian; English abstract.

Salmon (General) / Smoltification

809

Iwata, M. 1982.
Transition of chum salmon fry into salt water. Pp.204-207 in E.L. Brannon and E.O. Salo (ed.). Proceedings of the Salmon and Trout Migratory Behavior Symposium. -- School of Fisheries, University of Washington, Seattle, Washington.

Chum Salmon - Fry / Japan / Estuary / Vertical Distribution - Salinity / Osmoregulatory and Excretory System, Seawater Adaptation - Physiological and Biochemical Aspects

810

Iwata, M., S. Hasegawa, and T. Hirano. 1982.
Decreased seawater adaptability of chum salmon (Oncorhynchus keta) fry following prolonged rearing in freshwater. -- Can. J. Fish. Aquat. Sci. 39(2):509-514.

Chum Salmon - Fry / Seawater Adaptation, Osmoregulatory and Excretory System - Physiological and Biochemical Aspects / Laboratory Study

811

Iwata, M., T. Hirano, and S. Hasegawa. 1982.
Behavior and plasma sodium regulation of chum salmon fry during transition into seawater. -- Aquaculture 28(1/2):133-142.

Chum Salmon - Fry / Estuary / Seawater Adaptation, Osmoregulatory and Excretory System - Physiological and Biochemical Aspects (Size and Growth) / Pattern, Vertical Distribution, Preference - Salinity / Laboratory Study

812

Jackson, J.M. 1969.
Additional record of a troll-caught king salmon, Oncorhynchus tshawytscha (Walbaum), with spawning features. -- Calif. Fish Game 55(2):157.

Chinook Salmon - Mature / California / Inshore / Migration (General)

813

Jackson, P.A., and D.I.D. Howie. 1967.
The movement of salmon, Salmo salar through an estuary and a fish-pass. -- Ir. Fish. Invest. Ser. A 2:28p.

Atlantic Salmon - Mature / Southern Europe / Estuary / Initiation of Stream Entry - Tide, Light Intensity, Water Level and Flow Rate / Diel Timing, Pattern, Behaviour

814

Jackson, R.I. 1950.
Variations in flow patterns at Hell's Gate and their relationships to the migration of sockeye salmon. -- Int. Pac. Salmon Fish. Comm. Bull. 3:85-129.

Sockeye Salmon - Mature / Southern British Columbia / River, Natural Obstruction / Migration (General) - Obstruction

815

Japan. Fisheries Agency. 1955.
On the salmon in waters adjacent to Japan: a biological review. -- Int. North Pac. Fish. Comm. Bull. 1:57-92.

Chum Salmon, Pink Salmon, Sockeye Salmon, Coho Salmon, Chinook Salmon - Adult / Western Pacific Ocean, Central Pacific Ocean, Eastern Pacific Ocean, Sea of Okhotsk, Eastern Kamchatka to Chuchuki Peninsula, Sea of Japan, Bering Sea / Open Ocean / Horizontal Distribution (Geographic) / Route

816

Järvi, T.H. 1934.
Angaben über das Alter in Finnland gefangenen Lachse vor der Auswanderung, nebst einigen Bermerkungen über ihre Wanderungen. -- Rapp. P.-V. Cons. Int. Explor. Mer 91:11-13.

Not seen.

Atlantic Salmon / Iceland and Northern Europe

817

Järvi, T.H. 1949.
A review of the results of salmon marking in the Baltic region. -- J. Cons. Cons. Int. Explor. Mer 16:100-112.

Atlantic Salmon - Immature, Mature / Iceland and Northern Europe / Inshore / Route - Current / Homing / Tagging

818

Jensen, A.L., and R.N. Duncan. 1971.
Homing of transplanted coho salmon. -- Prog. Fish Cult. 33(4):216-218.

Coho Salmon - Smolt, Mature / Washington / River / Homing / Marking / Imprinting and Learning

819

Jensen, A.S. 1939.
Concerning a change in climate during recent decades in the arctic and subarctic regions, from Greenland in the west to Eurasia in the east, and contemporary biological and geophysical changes. -- K. Dan. Vidensk. Selsk. Biol. Medd. 14(8):1-75.

Atlantic Salmon / Greenland / Horizontal Distribution (Geographic) - Water Temperature

820

Jensen, H.M. 1956.
Migratory habits of pink salmon found in the Tacoma Narrows area of Puget Sound. -- Wash. Dep. Fish. Fish. Res. Pap. 1(4):21-24.

Pink Salmon - Adult / Washington / Inshore / Route, Seasonal Timing / Tagging

821

Jensen, H.M. 1956.
Recoveries of immature chum salmon tagged in southern Puget Sound. -- Wash. Dep. Fish. Fish. Res. Pap. 1(4):32.

Chum Salmon - Immature / Washington, Southern British Columbia / Inshore / Route / Tagging

822

Jensen, J.M. 1967.
Atlantic salmon caught in the Irminger Sea. -- J. Fish. Res. Board Can. 24(12):2639-2640.

Atlantic Salmon - Immature / Eastern North Atlantic / Open Ocean / Horizontal Distribution (Geographic) / Capture

823

Jensen, J.M. 1968.
Report on recapture in Greenland waters of salmon tagged in America and Europe, and of recapture from tagging experiments in Greenland. -- Int. Comm. Northwest Atl. Fish. Redbook 1968(3):81-87.

Atlantic Salmon - Adult / Greenland, Atlantic Ocean (General) / Route / Tagging

824

Jessop, B.M. 1976.
Distribution and timing of tag recoveries from native and nonnative Atlantic salmon (Salmo salar) released into Big Salmon River, New Brunswick. -- J. Fish. Res. Board Can. 33(4):829-833.

Atlantic Salmon - Immature, Mature / Atlantic Canada and United States / Inshore / Route, Seasonal Timing / Tagging

825

Johnsen, P.B. 1978.
Contributions on the movements of fish: 1. Behavioral mechanisms of upstream migration and home stream selection in coho salmon (Oncorhynchus kisutch). 2. Winter aggregations of carp (Cyprinus carpio) as revealed by ultrasonic tracking. -- Ph.D. thesis. -- University of Wisconsin, Madison, Wisconsin. -- 134p.

Coho Salmon - Mature / Great Lakes / River / Taxis - Current (Odours) / Direction Finding (General), Pattern - Odours

826

Johnsen, P.B. 1982.
A behavioral control model for homestream selection in migratory salmonids. Pp.266-273 in E.L. Brannon and E.O. Salo (ed.). Proceedings of the Salmon and Trout Migratory Behavior Symposium. -- School of Fisheries, University of Washington, Seattle, Washington.

Salmon (General) - Mature / River / Taxis - Current (Odours) / Direction Finding (General), Pattern - Odours

827

Johnsen, P.B., and A.D. Hasler. 1980.
The use of chemical cues in the upstream migration of coho salmon, Oncorhynchus kisutch Walbaum. -- J. Fish Biol. 17(1):67-73.

Coho Salmon - Mature / Great Lakes / River / Direction Finding (General), Direction, Pattern - Odours / Taxis - Current

828

Johnsen, R.C. 1964.
Direction of movement of salmon in North Pacific Ocean and Bering Sea as indicated by surface gillnet catches. -- Int. North Pac. Fish. Comm. Bull. 14:33-48.

Sockeye Salmon, Chum Salmon, Pink Salmon - Immature, Mature / Bering Sea, Eastern Pacific Ocean, Central Pacific Ocean / Open Ocean / Direction - Time of Year / Capture

829

Johnson, D.E., and P.E. Fields. 1957.
The application of certain conditioning and handling techniques to the guidance of downstream migrant salmon. -- Univ. Wash. Sch. Fish. Tech. Rep. 35:56p.

Pacific Salmon (General) - Juvenile / Guiding

830

Johnson, D.E., and P.E. Fields. 1959.
The orientation of sexually mature male salmon to simulated star patterns. -- Univ. Wash. Coll. Fish. Tech. Rep. 48:3p.

Chinook Salmon - Mature / Orientation - Celestial Cues / Laboratory Study

831

Johnson, D.E., P.E. Fields, P.S. Karekar, and G.L. Finger. 1958.
Conditions under which light attracts and repels pre-migratory salmon in clear and turbid, still and running water. -- Univ. Wash. Coll. Fish. Tech. Rep. 42:15p.

Pacific Salmon (General) - Juvenile / Guiding

832

Johnson, J.H. 1960.
Sonic tracking of adult salmon at Bonneville Dam, 1957. -- Fish. Bull. Fish Wildl. Serv. 60(176):471-485.

Chinook Salmon, Coho Salmon, Steelhead Trout - Mature / Washington / River, Artificial Obstruction / Pattern / Speed of Migration - Time of Day, Light Intensity / Sonic or Radio Tracking

833

Johnson, J.H. 1966.
Fallback of adult chinook salmon at Ice Harbor Dam spillway, May 1964. -- U. S. Army Corps Eng. North Pac. Div. Fish. Eng. Res. Program Prog. Rep. 3:67-90.

Chinook Salmon - Mature / Artificial Obstruction / Pattern - Obstruction / Sonic or Radio Tracking

834

Johnson, W.E. 1956.
On the distribution of young sockeye salmon (*Oncorhynchus nerka*) in Babine and Nilkitkwa Lakes, B.C. -- *J. Fish. Res. Board* Can. 13(5):695-708.

Sockeye Salmon - Juvenile / Northern British Columbia / Lake / Pattern

835

Johnson, W.E. 1958.
Density and distribution of young sockeye salmon (*Oncorhynchus nerka*) throughout a multibasin lake system. -- *J. Fish. Res. Board* Can. 15(5):961-982.

Sockeye Salmon - Juvenile / Northern British Columbia / Lake / Pattern

836

Johnson, W.E. 1961.
Aspects of the ecology of a pelagic, zooplankton-eating fish. -- Verh. Int. Ver. Theor. Angew. Limnol. 14:727-731.

Sockeye Salmon - Fingerling / Northern British Columbia / Lake / Vertical Movement / Pattern - Current, Weather / Hydroacoustics

837

Johnson, W.E., and C. Groot. 1963.
Observations on the migration of young sockeye salmon (Oncorhynchus nerka) through a large, complex lake system. -- J. Fish. Res. Board Can. 20(4):919-938.

Sockeye Salmon - Smolt / Northern British Columbia / Lake / Speed of Migration - Time of Year / Direction Finding (General) - Current, Landmarks, Celestial Cues / Route, Direction, Seasonal Timing, Reverse Migration, Navigation / Tagging, Laboratory Study, Capture

838

Johnston, C.E. 1968.
A study of purines in the integument of juvenile Atlantic salmon (Salmo salar L.) during parr-smolt transformation. -- Ph.D. thesis. -- University of New Brunswick, Fredericton, New Brunswick.

Atlantic Salmon - Smolt / Smoltification, Skeletal and Integumentary System - Morphological Aspects, Physiological and Biochemical Aspects (Photoperiod, Water Temperature, Size and Growth)

839

Johnston, C.E., and J.G. Eales. 1967.
Purines in the integument of the Atlantic salmon (Salmo salar) during parr-smolt transformation. -- J. Fish. Res. Board Can. 24(5):955-964.

Atlantic Salmon - Fingerling, Smolt / Smoltification, Skeletal and Integumentary System - Morphological Aspects, Physiological and Biochemical Aspects

840

Johnston, C.E., and J.G. Eales. 1968.
Influence of temperature and photoperiod on guanine and hypoxanthine levels in skin and scales of Atlantic salmon (Salmo salar) during parr-smolt transformation. -- J. Fish. Res. Board Can. 25(9):1901-1909.

Atlantic Salmon - Fingerling, Smolt / Atlantic Canada and United States / Smoltification, Skeletal and Integumentary System - Morphological Aspects (Water Temperature, Photoperiod) / Laboratory Study

841

Johnston, C.E., and J.G. Eales. 1970.
Influence of body size on silvering of Atlantic salmon (Salmo salar) at parr-smolt transformation. -- J. Fish. Res. Board Can. 27(5):983-987.

Atlantic Salmon - Fingerling, Smolt / Atlantic Canada and United States / Smoltification - Morphological Aspects (Size and Growth, Water Temperature, Photoperiod) / Laboratory Study

842

Johnston, C.E., and R.L. Saunders. 1981.
Parr-smolt transformation of yearling Atlantic salmon (Salmo salar) at several rearing temperatures. -- Can. J. Fish. Aquat. Sci. 38(10):1189-1198.

Atlantic Salmon - Fingerling, Smolt / Atlantic Canada and United States / Smoltification - Physiological and Biochemical Aspects, Water Temperature, Size and Growth / Laboratory Study

843

Jonas, R.E.E., and R.A. MacLeod. 1960.
Biochemical studies on sockeye salmon during spawning migration: X. Glucose, total protein, non-protein nitrogen and amino acid nitrogen in plasma. -- J. Fish. Res. Board Can. 17(1):125-126.

Sockeye Salmon - Mature / Inshore, River, Tributary / Circulatory system - Physiological and Biochemical Aspects (Stage of Migration) / Energetics, Freshwater Adaptation / Laboratory Study

844

Jones, B.F. 1960.
Location of mature Bristol Bay red salmon at sea before arrival in Bristol Bay in 1960. -- Univ. Wash. Fish. Res. Inst. Circ. 127:3p.

Sockeye Salmon - Mature / Eastern Pacific Ocean, Central Pacific Ocean, Bering Sea, Western Alaska / Inshore, Open Ocean / Route, Speed of Migration, Seasonal Timing / Tagging

845

Jones, J.W. 1950.
Studies of the scales of young salmon, Salmo salar L. (juv.) in relation to growth, migration and spawning. -- Fish. Invest. Minist. Agric. Fish. (G.B.) Ser. 1 5(1):23p.

Atlantic Salmon - Smolt / Southern Europe / River / Initiation of Downstream Migration, Smoltification - Size and Growth

846

Jordan, D.S. 1919.
The red salmon: a fish with instinct for lake water. -- Nat. Hist. 19:370-371.

Sockeye Salmon - Mature / Lake, River / Direction Finding (General), Migration (General)

847

Jordan, F.P. 1967.
Summary of salmon enumeration and sampling data, Babine River counting fence, 1961-1966. -- Fish. Res. Board Can. Tech. Rep. 24:29p.

Steelhead Trout, Chum Salmon, Chinook Salmon, Sockeye Salmon, Coho Salmon - Mature / Northern British Columbia / River / Seasonal Timing / Count

848

Jordan, F.P., and H.D. Smith. 1972.
Summary of salmon counts and observations from the Babine River counting fence 1967-1971. -- Fish. Res. Board Can. Tech. Rep. 331:63p.

Chinook Salmon, Coho Salmon, Pink Salmon, Sockeye Salmon, Steelhead Trout, Chum Salmon - Mature / Northern British Columbia / River / Seasonal Timing / Count

849

Joyner, T. 1973.
Salmon for New England fisheries: Part II. Effect of the ocean environment on the high seas distribution of salmon. -- Mar. Fish. Rev. 35(10):4-8.

Pacific Salmon (General) - Adult / Horizontal Distribution (Geographic) - Water Temperature

850

Junge, C.O., and A.L. Oakley. 1966.
Trends in production rates for upper Columbia River runs of salmon and steelhead and possible effects of changes in turbidity. -- Res. Briefs Fish. Comm. Oreg. 12(1):22-43.

Chinook Salmon, Steelhead Trout - Juvenile / Oregon / River, Reservoir or Impoundment, Artificial Obstruction / Seasonal Timing - Turbidity

851

Jurss, K. 1980.
The effect of changes in external salinity on the free amino acids and two aminotransferases of white muscle from fasted _Salmo gairdneri_ Richardson. -- Comp. Biochem. Physiol. 65A:501-504.

Steelhead Trout / Seawater Adaptation, Osmoregulatory and Excretory System - Physiological and Biochemical Aspects / Laboratory Study

852

Kaganovskii, A.G. 1949.
Some problems of the biology and population dynamics of pink salmon. -- Izv. Tikhookean. Nauchno-Issled. Inst. Rybn. Khoz. Okeanogr. 31:5-7 (Pp.127-184 _in_ Pacific salmon: selected articles from Soviet periodicals. -- Jerusalem: Israel Program for Scientific Translations. 1961.).

Pink Salmon - Mature, Immature / Sea of Japan, Sea of Okhotsk, Bering Sea, Eastern Kamchatka to Chuchuki Peninsula / Inshore, Open Ocean, Estuary, River / Horizontal Distribution (Geographic) - Water Temperature / Route, Straying, Speed of Migration / Seasonal Timing / Initiation of Stream Entry - Water Level and Flow Rate, Water Temperature

853

Kairov, E.A. 1962.
Observations of the passage of migrating salmon and _Vimba_ spawners through the fishway of the Kegum Hydro-Electric Power Station. Pp.57-60 _in_ Trudy Konferentsii Molodykh Spetsialistov Nauchno-Issledovatel'skii Institut Rybnogo Khoziaistva Sovet Narodnogo Khoziaistva Latviiskoi SSR. -- NIIRKh SNKh Latv. SSR, Riga, USSR. (Fish. Res. Board Can. Transl. Ser. 667).

Atlantic Salmon - Mature / Iceland and Northern Europe / River, Artificial Obstruction / Seasonal Timing, Initiation of Upstream Migration - Current, Water Temperature / Diel Timing

854

Kaji, S., M. Satou, Y. Kudo, K. Ueda, and A. Gorbman. 1975.
Spectral analysis of olfactory responses of adult spawning chum salmon (Oncorhynchus keta) to stream waters. -- Comp. Biochem. Physiol. 51A:711-716.

Chum Salmon - Mature / River / Direction Finding (General) - Odours / Olfactory system - Physiological and Biochemical Aspects / Laboratory Study

855

Kamyshnaya, M.S. 1967.
Downstream migration and behaviour of the young of introduced pink salmon. -- Rybn. Khoz. 43(1):9-12 (Fish. Res. Board Can. Transl. Ser. 833).

Pink Salmon - Fry, Mature / Western Arctic Russia / River, Tributary / Initiation of Downstream Migration, Seasonal Timing - Water Temperature / Schooling, Diel Timing, Pattern

856

Kasahara, H. 1961.
Pacific salmon. Pp.23-48 in H. Kasahara. Fisheries resources of the North Pacific Ocean, part I. H.R. MacMillan Lectures in Fisheries, 1960. -- Institute of Fisheries, University of British Columbia, Vancouver, British Columbia.

Chum Salmon, Pink Salmon, Coho Salmon - Adult / Pacific Ocean (General) / Open Ocean, Inshore / Horizontal Distribution (Geographic)

857

Kashiwagi, M., and R. Sato. 1969.
Studies on the osmoregulation of the chum salmon, Oncorhynchus keta (Walbaum): I. The tolerance of eyed period eggs, alevins and fry of chum salmon to sea water. -- Tohoku J. Agric. Res. 20(1):41-47.

Chum Salmon - Alevin, Fry / Seawater Adaptation, Osmoregulatory and Excretory System - Physiological and Biochemical Aspects / Laboratory Study

858

Kato, M. 1968.
A character showing the different migration courses and

time of annual formation on scales of the pink salmon, Oncorhynchus gorbuscha (Walbaum), collected from the Japan Sea. -- Bull. Jap. Sea Reg. Fish. Res. Lab. 19:19-28.

In Japanese; English abstract.

Pink Salmon - Adult / Sea of Japan / Inshore / Route / Stock Identification - Scale Analysis

859

Kauffman, D.E. 1951.
Research report on the Washington State offshore troll fishery. -- Pac. Mar. Fish. Comm. Bull. 2:77-91.

Chinook Salmon, Coho Salmon - Immature, Mature / Oregon, Southern British Columbia / Inshore / Route / Tagging

860

Kawashima, R., and K. Kyuushin. 1964.
On the analysis of chum salmon scale pattern by use of auto-correlation coefficient. -- Bull. Fac. Fish. Hokkaido Univ. 15(1):25-33.

In Japanese; English abstract.

Chum Salmon / Pacific Ocean / Stock Identification - Scale Analysis

861

Keenleyside, M.H.A. 1957.
Aquarium observations on the behaviour of young Atlantic salmon, 1957. -- Fish. Res. Board Can. Manuscr. Rep. Ser. (Biol.) 643:23p.

Atlantic Salmon - Fry, Fingerling / Atlantic Canada and United States / Behaviour - Current / Laboratory Study

862

Keenleyside, M.H.A., and W.S. Hoar. 1955.
Effects of temperature on the responses of young salmon to water currents. -- Behaviour 7:77-87.

Chum Salmon, Coho Salmon, Sockeye Salmon - Fry, Smolt / Taxis - Current (Light Intensity, Water Temperature) / Initiation of Downstream Migration - Water Temperature / Laboratory Study

863

Keil, W.M. 1922.
The biological significance of the smolt period in certain salmonids. -- Trans. Am. Fish. Soc. 52:178-183.

Salmon (General) - Fingerling, Smolt / Smoltification

864

Kelso, B.W., T.G. Northcote, and C.F. Wehrhahn. 1981.
Genetic and environmental aspects of the response to water current by rainbow trout (Salmo gairdneri) originating from inlet and outlet streams of two lakes. -- Can. J. Zool. 59(11):2177-2185.

Steelhead Trout - Juvenile / Direction - Genetic Aspects, Light Intensity, Water Temperature / Taxis - Current (Genetical Aspects, Light Intensity, Water Temperature) / Laboratory Study

865

Kennedy, C.R. 1978.
The biology, specificity and habitat of the species of Eubothrium (Cestoda: Pseudophyllidea), with reference to their use as biological tags: a review. -- J. Fish Biol. 12:393-410.

Atlantic Salmon / Atlantic Ocean (General) / Stock Identification - Parasite Tags

866

Kerns, O.E., and R.A. Marriott. 1963.
Enumeration of red salmon smolt migration. -- Alaska Dep. Fish Game Inf. Leafl. 25:18p.

Sockeye Salmon - Smolt / Western Alaska / River / Seasonal Timing, Diel Timing / Count

867

Kerstetter, T.H., and M. Keeler. 1976.
Smolting in steelhead trout Salmo gairdneri: a comparative study of populations in two hatcheries and the Trinity River, northern California, using gill Na, K, ATPase assays. -- Humboldt State Univ. Publ. H.S.U. SG-9:26p.

Steelhead Trout - Smolt / California / Smoltification - Physiological and Biochemical Aspects

868

Kerswill, C.J., and M.H.A. Keenleyside. 1961.
Canadian salmon caught off Greenland. -- Nature 192:279.

Atlantic Salmon - Immature / Atlantic Canada and United States, Greenland / Route / Tagging

869

Kesner, W.D., and R.A. Barnhart. 1972.
Characteristics of the fall-run steelhead trout (*Salmo gairdneri gairdneri*) of the Klamath River system with emphasis on the half pounder. -- Calif. Fish Game 58(3):204-220.

Steelhead Trout - Smolt / California / River / Seasonal Timing / Speed of Migration - Age

870

Khalturin, D.K. 1967.
The value of angular displacement in the description of the anadromal migrations in the genus *Salmo*. -- Dokl. Acad. Sci. USSR Biol. Sci. Sect. 177:736-738.

Atlantic Salmon - Mature / River / Migration (General)

871

Khalturin, D.K. 1978.
Smolt age and the duration of the marine period in the life of anadromous salmonids (Salmonidae). -- J. Ichthyol. 18(6):871-885.

Salmon (General) / Migration (General)

872

Killick, S.R. 1955.
The chronological order of Fraser River sockeye salmon during migration, spawning and death. -- Int. Pac. Salmon Fish. Comm. Bull. 7:95p.

Sockeye Salmon - Mature / Southern British Columbia / River / Seasonal Timing, Speed of Migration / Tagging

873

Kim, K.T., J.D. Kim, and T.K. Joo. 1967.
On study of salmon (*Oncorhynchus keta*) upper stream artificial hatching in Eastern Sea to Korea. -- Bull. Fish. Res. Dev. Agency (Korea) 2:43-53.

In Korean; English abstract.

Chum Salmon - Mature / Sea of Japan / River / Seasonal Timing

874

Kizevetter, I.V. 1948.
Changes in chemical composition of the body of red (sockeye) salmon. -- Izv. Tikhookean. Nauchno-Issled. Inst. Rybn. Khoz. Okeanogr. 27:29-42 (Pp.86-100 in Pacific salmon: selected articles from Soviet periodicals. -- Jerusalem: Israel Program for Scientific Translations. 1961.).

Sockeye Salmon - Juvenile, Mature / River / Freshwater Adaptation, Digestive system - Physiological and Biochemical Aspects / Energetics / Initiation of Downstream Migration - Influences (Miscellaneous)

875

Kleerekoper, H. 1969.
Olfaction in fishes. -- Indiana University Press, Bloomington, Indiana. -- 222p.

Salmon (General) / Direction Finding (General) - Odours / Olfactory system - Physiological and Biochemical Aspects

876

Kleerekoper, H. 1982.
The role of olfaction in the orientation of fishes, Pp.201-225 in T.J. Hara (ed.). Chemoreception in fishes. -- Elsevier, New York, New York.

Salmon (General) / Direction Finding (General) - Odours / Olfactory system - Physiological and Biochemical Aspects / Taxis - Current (Odours)

877

Kliavsons, Y.A. 1970.
The physiological changes in the organs of Baltic salmon during smoltification. -- Rybn. Khoz. 3:11-13 (Univ. Wash. Coll. Fish. Soviet Fish. Pertinalia 1970(3)).

Atlantic Salmon - Smolt / Smoltification, Seawater Adaptation, Osmoregulatory and Excretory System - Physiological and Biochemical Aspects / Laboratory Study

878

Kliavsons, Y.A. 1972.
Significance of separate serum protein fractions in the

regulation of water-salt metabolism in salmonids. -- Tr. Vses. Nauchno-Issled. Inst. Morsk. Rybn. Khoz. Okeanogr. 85(3):103-106 (Fish. Res. Board Can. Transl. Ser. 2845).

Atlantic Salmon - Fingerling, Smolt / Osmoregulatory and Excretory System, Smoltification - Physiological and Biochemical Aspects / Laboratory Study

879

Klokov, V.K. 1973.
Variability in measurement and weight indices of chum salmon of the northern coast of the Sea of Okhotsk. -- Izv. Tikhookean. Nauchno-Issled. Inst. Rybn. Khoz. Okeanogr. 86:81-100 (Fish. Mar. Ser. Can. Transl. Ser. 3334).

Chum Salmon / Sea of Okhotsk / Stock Identification - Morphometrics and Meristics

880

Knutsson, S., and T. Grav. 1976.
Seawater adaptation in Atlantic salmon (Salmo salar L.) at different experimental temperatures and photoperiods. -- Aquaculture 8:169-187.

Atlantic Salmon - Fingerling, Smolt / Seawater Adaptation, Smoltification - Size and Growth, Photoperiod, Water Temperature / Laboratory Study

881

Kobayashi, S. 1955.
Changes in catalase activity of the tissues and blood of "masu", Oncorhynchus masou, when transferred from fresh-water to sea water. -- Bull. Fac. Fish. Hokkaido Univ. 6(1):1-6.

Masu Salmon - Smolt / Osmoregulatory and Excretory System - Physiological and Biochemical Aspects / Seawater Adaptation / Laboratory Study

882

Kobayashi, S., and R. Yuki. 1954.
Differences in catalase activity in the tissues and blood between the smolt and parr of masu, Oncorhynchus masou. -- Bull. Fac. Fish. Hokkaido Univ. 5(3):223-230.

Masu Salmon - Fingerling, Smolt / Osmoregulatory and Excretory System - Physiological and Biochemical Aspects (Time of Year) / Smoltification / Laboratory Study

883

Kobayashi, S., and R. Yuki. 1954.
On the specificity of kidney catalase activity in salmonid fishes. -- Bull. Fac. Fish. Hokkaido Univ. 5(2):137-148.

Pacific Salmon (General) / Smoltification, Osmoregulatory and Excretory System - Physiological and Biochemical Aspects / Laboratory Study

884

Kobayashi, T. 1953.
An ecological study on the salmon fry, *Oncorhynchus keta*: (3) Observation on the descending of the salmon fry. *I.* -- Sci. Rep. Hokkaido Fish Hatchery 8:81-85.

In Japanese; English abstract.

Chum Salmon - Fry / Japan / River / Diel Timing

885

Kobayashi, T. 1958.
An ecological study on the salmon fry, *Oncorhynchus keta*: (5) The behavior of chum salmon fry to their seaward migration. -- Sci. Rep. Hokkaido Salmon Hatchery 12:21-30.

In Japanese; English abstract.

Chum Salmon - Fry / Japan / River / Taxis - Current / Voluntary Displacement, Schooling / Initiation of Downstream Migration - Light Intensity, Turbidity, Dissolved Gas Concentration, Water Temperature, Water Level and Flow Rate

886

Kobayashi, T. 1968.
A note on the seaward migration of pink salmon fry. -- Sci. Rep. Hokkaido Salmon Hatchery 22:7-13.

In Japanese; English abstract.

Pink Salmon - Fry / Japan / Tributary / Seasonal Timing, Voluntary Displacement

887

Kobayashi, T., and S. Abe. 1977.
Studies on the Pacific salmon in the Yurappu River and Volcano Bay: 2. On the migration and growth of the fry during seaward migration and the return of marked adults. -- Sci. Rep. Hokkaido Salmon Hatchery 31:1-11.

In Japanese; English abstract.

Chum Salmon - Immature / Japan / Inshore / Route / Marking

888

Kobayashi, T., S. Abe, and Y. Ozaki. 1978.
Studies on the Pacific salmon in the Yurappu River and Volcano Bay: 3. On the returning of pink salmon. -- Sci. Rep. Hokkaido Salmon Hatchery 32:1-8.

In Japanese; English abstract.

Pink Salmon, Chum Salmon - Fry / Japan / River / Speed of Migration / Marking

889

Kobayashi, T., and S. Harada. 1966.
Ecological observations on the salmon of Nishibetsu River: II. Movements, growth and feeding habits of pink salmon fry, Oncorhynchus gorbuscha (Walbaum), during seaward migration. -- Sci. Rep. Hokkaido Salmon Hatchery 20:1-10 (Fish. Res. Board Can. Transl. Ser. 785).

Chum Salmon, Pink Salmon - Fry / Japan / River / Seasonal Timing, Diel Timing

890

Kobayashi, T., S. Harada, and S. Abe. 1965.
Ecological observations on the salmon of Nishibetsu River: I. The migration and growth of chum salmon fry, Oncorhynchus keta (Walbaum). -- Sci. Rep. Hokkaido Salmon Hatchery 19:1-10.

In Japanese; English abstract.

Chum Salmon - Fry / Japan / River / Diel Timing - Turbidity, Light Intensity / Speed of Migration

891

Kobayashi, T., and M. Sasaki. 1965.
Experiments using air bubbles and light to deflect migrating chum salmon fry, Oncorhynchus keta (Walbaum). -- Sci. Rep. Hokkaido Salmon Hatchery 19:33-42.

In Japanese; English abstract.

Chum Salmon - Fry / Guiding

892

Koch, H.J.A. 1982.
Hemoglobin changes with size in the Atlantic salmon (Salmo salar L.). -- Aquaculture 28(1/2):231-240.

Atlantic Salmon - Smolt / Smoltification, Circulatory system - Physiological and Biochemical Aspects (Size and Growth)

893

Koch, H.J.A., J.C. Evans, and E. Bergstrom. 1959.
Sodium regulation in the blood of parr and smolt stages of Atlantic salmon. -- Nature 184:283.

Atlantic Salmon - Fingerling, Smolt / Seawater Adaptation, Osmoregulatory and Excretory System - Physiological and Biochemical Aspects / Laboratory Study

894

Koganezawa, A., Y. Fumikazu, I. Nobumasa, G. Kunio, and I. Akira. 1971.
Studies on the culture of salmonid fishes in seawater: I. Acclimatization of salmonid fishes to seawater. -- Miyagi-Ken Suisan Shikenjo Kenkyu Hokoku. 5:10p. (Fish. Mar. Serv. (Can.) Transl. Ser. 3415).

Steelhead Trout, Sockeye Salmon - Juvenile / Seawater Adaptation / Laboratory Study

895

Komourdjian, M.P., R.L. Saunders, and J.C. Fenwick. 1976.
The effect of porcine somatotropin on growth, and survival in seawater of Atlantic salmon (Salmo salar) parr. -- Can. J. Zool. 54:531-535.

Atlantic Salmon - Fingerling / Seawater Adaptation, Smoltification - Pituitary system / Laboratory Study

896

Komourdjian, M.P., R.L. Saunders, and J.C. Fenwick. 1976.
Evidence for the role of growth hormone as a part of a "light pituitary axis" in growth and smoltification of Atlantic salmon (Salmo salar). -- Can. J. Zool. 54:544-551.

Atlantic Salmon - Fingerling, Smolt / Smoltification - Photoperiod, Pituitary system, Size and Growth, Morphological Aspects, Physiological and Biochemical Aspects / Laboratory Study

897

Konovalov, S.M. 1966.
Differentiation of local stocks of sockeye salmon, *Oncorhynchus nerka* (Walbaum), by a composite method based upon indicator parasites and peculiarities of the scale structure. -- Vopr. Ikhtiol. 6(4):619-630 (Fish. Res. Board Can. Transl. Ser. 853).

Sockeye Salmon / Pacific Ocean (General) / Stock Identification - Parasite Tags, Scale Analysis

898

Konovalov, S.M. 1971.
Differentiation of local populations of sockeye salmon. -- Nauka, Leningrad, USSR. -- 229p. (Univ. Wash. Publ. Fish. New Ser. 6, 1975).

Sockeye Salmon / Sea of Okhotsk, Eastern Kamchatka to Chuchuki Peninsula, Western Pacific Ocean, Open Ocean, Bering Sea / Route / Stock Identification - Scale Analysis, Parasite Tags

899

Koo, T.S. 1959.
Red salmon smolt enumeration in the Wood River system. -- Univ. Wash. Fish. Res. Inst. Circ. 103:4p.

Sockeye Salmon - Smolt / Western Alaska / River, Lake / Seasonal Timing, Diel Timing / Count

900

Korn, L. 1961.
A winter steelhead tagging program on the Columbia River. --Fish Comm. Oreg. Contrib. 26:35p.

Steelhead Trout - Mature / Oregon, Washington / River / Seasonal Timing, Pattern

901

Krasnowski, P.V., and M.L. Bethe. 1978.
Stock separation studies of Alaskan salmon based on scale pattern analysis. -- Alaska Dep. Fish Game Inf. Leafl. 175:37p.

Sockeye Salmon, Chum Salmon, Coho Salmon, Chinook Salmon / Western Alaska, Southeastern Alaska, Central Alaska / Stock Identification - Scale Analysis

902

Krcma, R.F., and R.F. Raleigh. 1970.
Migration of juvenile salmon and trout into Brownlee Reservoir, 1962-65. -- Fish. Bull. 68(2):203-217.

Sockeye Salmon, Chinook Salmon, Steelhead Trout - Juvenile / Colorado, Idaho, Oregon / Reservoir or Impoundment / Seasonal Timing / Count

903

Kreps, E.M., M.A. Chebotareva, and V.N. Akulin. 1969.
Fatty acid composition of brain and body phospholipids of the anadromous salmon, Oncorhynchus nerka, from fresh-water and marine habitat. -- Comp. Biochem. Physiol. 31:419-430.

Sockeye Salmon - Juvenile, Adult, Mature / Organ Systems (General) - Physiological and Biochemical Aspects (Stage of Migration) / Laboratory Study

904

Kristiansson, A.C., and J.D. McIntyre. 1976.
Genetic variation in chinook salmon (Oncorhynchus tshawytscha) from the Columbia River and three Oregon coastal rivers. -- Trans. Am. Fish. Soc. 105(5):620-623.

Chinook Salmon / Oregon, Washington / Stock Identification - Electrophoresis and Serology

905

Krogius, F.V. 1954.
The relation of the up-river migration of sockeye salmon and the seaward migration of their young to the daily cycle of water temperature, pH and content of dissolved gases. -- Izv. Tikhookean. Nauchno-Issled. Inst. Rybn. Khoz. Okeanogr. 41:197-229 (Fish. Res. Board Can. Transl. Ser. 169).

Sockeye Salmon - Juvenile, Mature / Sea of Okhotsk / Lake, River / Seasonal Timing / Initiation of Downstream Migration - Weather / Initiation of Downstream Migration, Initiation of Upstream Migration, Diel Timing - Water Temperature, Dissolved Gas Concentration, Influences (Miscellaneous)

906

Krogius, F.V. 1958.
On the scale pattern of Kamchatka sockeye of different local populations. Pp.52-63 *in* P.A. Moiseeva (ed.).

Materialy po Biologii Morskogo Perioda Zhini Dalnevostochnykh Losesei. -- Vsesoiuznyi Nauchno-Issledovatel'skii Institut Morskogo Rybnogo Khoziaistva i Okeanografi, Moskva, USSR. (Fish. Res. Board Can. Transl. Ser. 181).

Sockeye Salmon / Eastern Kamchatka to Chuchuki Peninsula, Sea of Okhotsk / Stock Identification - Scale Analysis

907

Krogius, F.V. 1967.
On the relationship of the seaward migration of young sockeye salmon to the conditions prevailing in Lake Dal'nee. -- Izv. Tikhookean. Nauchno-Issled. Inst. Rybn. Khoz. Okeanogr. 57:25-30 (Fish. Res. Board Can. Transl. Ser. 1185).

Sockeye Salmon - Fingerling, Smolt / Sea of Okhotsk / Lake, River / Seasonal Timing, Vertical Distribution, Non Migratory Movements - Weather, Water Temperature / Initiation of Downstream Migration - Water Temperature, Weather, Current / Diel Timing / Termination of Migration - Water Temperature

908

Krogius, F.V. 1974.
The significance of vertical migrations in the energy balance of young sockeye in Lake Dalnee, Kamchatka, USSR. -- Izv. Tikhookean. Nauchno-Issled. Inst. Rybn. Khoz. Okeanogr. 90:39-48.

In Russian; English abstract.

Sockeye Salmon - Juvenile / Eastern Kamchatka to Chuchuki Peninsula / Lake / Vertical Movement - Food Availability / Energetics

909

Krogius, F.V., and E.M. Krokhin. 1957.
The run of sockeye and the daily temperature rhythm in the Paratunka River. -- Izv. Tikhookean. Nauchno-Issled. Inst. Rybn. Khoz. Okeanogr. 45:201-202 (Fish. Res. Board Can. Transl. Ser. 197).

Sockeye Salmon - Mature / Sea of Okhotsk / River / Direction Finding (General) - Water Temperature

910

Krupitskiy, Yu.G., and A.F. Ustyugov. 1977.
The pink salmon, Oncorhynchus gorbuscha, in the rivers of the north of Krasnoyarsk Territory. -- J. Ichthyol. 17(2):320-322.

Pink Salmon - Adult / Western Arctic Russia / Inshore / Horizontal Distribution (Geographic) / Capture

911

Kubo, T. 1953.
On the blood of salmonoid fishes of Japan during migration: I. Freezing point of blood. -- Bull. Fac. Fish. Hokkaido Univ. 4(2):138-148.

In Japanese; English abstract.

Pacific Salmon (General) - Fry, Fingerling, Smolt, Immature, Mature / Circulatory system - Physiological and Biochemical Aspects (Stage of Migration) / Laboratory Study

912

Kubo, T. 1954.
Some nitrogen compounds of blood and metamorphosis of Oncorhynchus masou. -- Bull. Fac. Fish. Hokkaido Univ. 5(3):248-252.

In Japanese; English abstract.

Masu Salmon - Fingerling, Smolt / Circulatory system - Physiological and Biochemical Aspects (Time of Year) / Smoltification / Laboratory Study

913

Kubo, T. 1955.
Changes of some characteristics of blood of smolts of Oncorhynchus masou during seaward migration. -- Bull. Fac. Fish. Hokkaido Univ. 6(3):201-207.

In Japanese; English abstract.

Masu Salmon - Smolt / Japan / River / Pattern, Behaviour, Schooling / Circulatory system - Physiological and Biochemical Aspects (Stage of Migration, Time of Year) / Laboratory Study

914

Kubo, T. 1956.
The effect of the control of light upon the rate of

smoltification and the growth of body of juvenile masu salmon. -- Sci. Rep. Hokkaido Fish Hatchery 11:19-23.

In Japanese; English abstract.

Masu Salmon - Smolt / Japan / Smoltification - Light Intensity / Laboratory Study

915

Kubo, T. 1958.
A note on the age and race of the red salmon in the North Pacific Ocean. -- Bull. Fac. Fish. Hokkaido Univ. 8(4):304-309.

In Japanese; English abstract.

Sockeye Salmon - Adult / Central Pacific Ocean / Open Ocean / Direction / Stock Identification - Morphometrics and Meristics

916

Kubo, T. 1959.
A preliminary study on the effects of environmental factors upon the attainment of the smolt stage in juvenile masu salmon. -- Sci. Rep. Hokkaido Salmon Hatchery 14:15-19.

In Japanese; English abstract.

Masu Salmon - Fingerling, Smolt / Japan / Smoltification - Photoperiod, Water Temperature / Laboratory Study

917

Kubo, T. 1961.
Notes on the blood of masu salmon (Oncorhynchus masou) during up-stream migration for spawning, with special reference to osmoconcentration. -- Bull. Fac. Fish. Hokkaido Univ. 12(3):189-195.

In Japanese; English abstract.

Masu Salmon - Mature / Osmoregulatory and Excretory System, Circulatory system - Physiological and Biochemical Aspects (Stage of Migration) / Laboratory Study

918

Kubo, T. 1965.
On the influence of temperature upon the acceleration of smolt-transformation in juvenile masu salmon

(*Oncorhynchus masou*). -- Sci. Rep. Hokkaido Salmon Hatchery 19:25-32.

In Japanese; English abstract.

Masu Salmon - Fingerling, Smolt / Japan / Smoltification - Water Temperature / Laboratory Study

919

Kubo, T. 1974.
Notes on the phase differentiation and smolt transformation of juvenile masu salmon (*Oncorhynchus masou*). -- Sci. Rep. Hokkaido Salmon Hatchery 28:9-26 (Fish. Mar. Serv. (Can.) Transl. Ser. 3208).

Masu Salmon - Fingerling, Smolt / Japan / Smoltification - Morphological Aspects, Physiological and Biochemical Aspects, Behaviour, Size and Growth / Osmoregulatory and Excretory System - Physiological and Biochemical Aspects / Laboratory Study

920

Kubo, T. 1980.
Studies on the life history of "masu" salmon (*Oncorhynchus masou*) in Hokkaido. -- Sci. Rep. Hokkaido Salmon Hatchery 34:1-95.

In Japanese; English abstract.

Masu Salmon - Fingerling, Fry, Smolt, Immature / Japan / River, Inshore / Smoltification - Physiological and Biochemical Aspects, Morphological Aspects / Seasonal Timing, Pattern, Route / Osmoregulatory and Excretory System, Seawater Adaptation - Physiological and Biochemical Aspects

921

Kubo, T., and T. Kobayashi. 1953.
Some populations of dog salmon (*Oncorhynchus keta* (Walbaum)) in Oshikari River system, Hokkaido, and the numbers of their vertebrae and lateral-line scales. -- Bull. Jap. Soc. Sci. Fish. 19(4):297-302.

In Japanese; English abstract.

Chum Salmon - Mature / Japan / River / Homing / Stock Identification - Morphometrics and Meristics

922

Kulikova, N.I. 1972.
Variability and operation in the chum salmon (Oncorhynchus keta (Walb.)). -- J. Ichthyol. 12(2):185-197.

Chum Salmon - Mature / Sea of Okhotsk, Eastern Kamchatka to Chuchuki Peninsula / River / Seasonal Timing

923

Kulikova, N.I. 1975.
Identification of local stocks of chum salmon in the sea using the structure of scale and some morphological features. -- Tr. Vses. Nauchno-Issled. Inst. Morsk. Rybn. Khoz. Okeanogr. 106:49-51.

In Russian; English abstract.

Chum Salmon / Sea of Okhotsk, Eastern Kamchatka to Chuchuki Peninsula / Stock Identification - Scale Analysis, Morphometrics and Meristics

924

Kupka, K.H. 1966.
A downstream migrant diversion screen. -- Can. Fish Cult. 37:27-34.

Salmon (General) - Juvenile / Guiding

925

Kusakina, A.A. 1963.
[Changes in thermal stability of muscle proteins of young salmon during smoltification.] -- Tsitologiia 5(1):88-91.

In Russian; Not seen.

Salmon (General) - Juvenile / Smoltification - Physiological and Biochemical Aspects

926

Kwain, W. 1982.
Spawning behavior and early life history of pink salmon (Oncorhynchus gorbuscha) in the Great Lakes. -- Can. J. Fish. Aquat. Sci. 39(10):1353-1360.

Pink Salmon - Fry / Great Lakes / Diel Timing, Seasonal Timing / Preference - Water Temperature / Laboratory Study

927

Lander, R.H. 1970.
Distribution in marine fisheries of marked chinook salmon from the Columbia River hatchery program, 1963-66. -- Res. Rep. Fish Comm. Oreg. 2(1):28-55.

Chinook Salmon - Immature, Mature / Washington, Southern British Columbia, Northern British Columbia, Southeastern Alaska, California / Route / Horizontal Distribution (Geographic) - Age / Marking

928

Lander, R.H., and K.A. Henry. 1973.
Survival, maturity, abundance, and marine distribution of 1965-68 brood coho salmon, *Oncorhynchus kisutch*, from Columbia River hatcheries. -- Fish. Bull. 71(3):679-691.

Coho Salmon - Adult / Washington, Oregon, California, Southern British Columbia / Inshore / Route / Marking

929

Landrum, B.J., and T.A. Dark. 1968.
The distribution of mature western Alaskan and Kamchatkan sockeye salmon (*Oncorhynchus nerka*) in the North Pacific Ocean and Bering Sea. -- Int. North Pac. Fish. Comm. Bull. 24:1-110.

Sockeye Salmon - Mature / Pacific Ocean (General) / Open Ocean / Horizontal Distribution (Geographic), Route / Stock Identification - Morphometrics and Meristics

930

Lapi, L.A., and T.J. Mulligan. 1981.
Salmon stock identification using a microanalytic technique to measure elements present in the freshwater growth region of scales. -- Can. J. Fish. Aquat. Sci. 38(7):744-751.

Sockeye Salmon / Southern British Columbia / Stock Identification - Biogeochemical Analysis

931

Large, T. 1940.
A hint concerning a mystery - homing salmon. -- Northwest Sci. 14:44-45.

Chinook Salmon - Mature / River / Migration (General), Direction Finding (General)

932

Larkin, P.A. (ed.). 1958.
The investigation of fish-power problems. H.R. MacMillan Lectures in Fisheries, 1957. -- Institute of Fisheries, University of British Columbia, Vancouver, British Columbia.

Salmon (General) / Migration (General) - Obstruction, Reservoirs and Impoundments

933

Larkin, P.A. 1959.
The effects on fresh water fisheries of man-made activities in British Columbia. -- Can. Fish Cult. 25:27-59.

Salmon (General) / Migration (General) - Obstruction

934

Larkins, H.A. 1964.
Direction of movement of salmon in the North Pacific Ocean, Bering Sea and Gulf of Alaska as indicated by surface gillnet catches, 1961. -- Int. North Pac. Fish. Comm. Bull. 14:49-58.

Sockeye Salmon, Pink Salmon, Chum Salmon - Immature, Mature / Bering Sea, Eastern Pacific Ocean, Western Pacific Ocean / Open Ocean / Direction - Time of Year / Capture

935

Larkins, H.A., and R.R. French. 1964.
Effect of direction of set and distance between nets on the salmon catch of two gillnets. -- Int. North Pac. Fish. Comm. Bull. 14:59-65.

Sockeye Salmon, Chum Salmon - Adult / Eastern Pacific Ocean / Open Ocean / Pattern / Capture

936

Larson, R.W., and J.M. Ward. 1954.
Management of steelhead trout in the State of Washington. -- Trans. Am. Fish. Soc. 84:261-274.

Steelhead Trout - Fry / Washington / River / Seasonal Timing, Initiation of Downstream Migration - Population Density

937

Lasserre, P., G. Boeuf, and Y. Harache. 1978.
Osmotic adaptation of *Oncorhynchus kisutch* Walbaum: I. Seasonal variations of gill Na+-K+ ATPase activity in coho salmon, 0+-age and yearling, reared in freshwater. -- Aquaculture 14(4):365-370.

Coho Salmon - Juvenile / Osmoregulatory and Excretory System - Physiological and Biochemical Aspects (Time of Year)

938

Lear, W.H. 1976.
Migrating Atlantic salmon (*Salmo salar*) caught by otter trawl on the Newfoundland continental shelf. -- J. Fish. Res. Board Can. 33(5):1202-1205.

Atlantic Salmon - Adult / Atlantic Canada and United States / Open Ocean / Horizontal Distribution (Geographic), Route / Capture

939

Lear, W.H., and E.J. Sandeman. 1980.
Use of scale characters and discriminant functions for identifying continental origin of Atlantic salmon. -- Rapp. P.-V. Reun. Cons. Int. Explor. Mer 176:68-75.

Atlantic Salmon / Atlantic Ocean (General) / Stock Identification - Scale Analysis

940

Leatherland, J.F. 1978.
Effect of L-DOPA, Bromocripton and Lergotrile on prolactin cell activity and hydromineral regulation in yearling coho salmon, *Oncorhynchus kisutch*. -- Environ. Biol. Fish 3(4):385-388.

Coho Salmon - Fingerling / Osmoregulatory and Excretory System - Physiological and Biochemical Aspects / Laboratory Study

941

Leatherland, J.F., and R.A. Sonstegard. 1980.
Seasonal changes in thyroid hyperplasia, serum thyroid hormone and lipid concentrations, and pituitary gland structure in Lake Ontario coho salmon, *Oncorhynchus kisutch* Walbaum, and a comparison with coho salmon from Lakes Michigan and Erie. -- J. Fish Biol. 16(5):539-562.

Coho Salmon - Adult / Great Lakes / Thyroid system - Physiological and Biochemical Aspects (Time of Year) / Pituitary system - Morphological Aspects (Time of Year) / Laboratory Study

942

Lechner, J. 1969.
Identification of red salmon stocks taken in the Cape Kumlik-Aniakchak Bay fishery, Chignik area, 1967. -- Alaska Dep. Fish Game Inf. Leafl. 133:32p.

Sockeye Salmon - Mature / Central Alaska / Inshore / Route, Speed of Migration / Tagging

943

Leduc, G. 1972.
Changes of blood chloride osmolarity of salmon parr (Salmo salar) during short term exposure to sea water. -- Can. J. Zool. 50:1019-1021.

Atlantic Salmon - Fingerling / Seawater Adaptation, Osmoregulatory and Excretory System - Physiological and Biochemical Aspects / Laboratory Study

944

Lee, J.H., S.I. Lee, and K.H. Lee. 1973.
Oceanographic and fishing conditions of salmon and trout in the eastern Sea of Korea. -- Bull. Fish. Res. Dev. Agency (Korea) 10:25-37.

In Korean; English abstract.

Pacific Salmon (General) - Adult / Sea of Japan / Open Ocean / Horizontal Distribution (Geographic) - Water Temperature, Salinity

945

Leggett, W.C. 1977.
The ecology of fish migrations. -- Ann. Rev. Ecol. Syst. 8:285-308.

Salmon (General) - Mature / Evolution / Homing / Direction Finding (General) - Celestial Cues, Magnetic Field, Electric Fields, Inertial Cues, Odours / Route - Water Temperature, Salinity, Current / Random Movement, Migration (General)

946

Leloup-Hatey, J. 1964.
A study of the courses of the stimulation of the anterior interrenal in teleosts subjected to an increase in the salinity of the external environment. -- Arch. Sci. Physiol. 18(3):293-323 (Fish. Res. Board Can. Transl. Ser. 1001).

Atlantic Salmon - Smolt / Seawater Adaptation - Physiological and Biochemical Aspects / Laboratory Study

947

Leman, B., and G.J. Paulik. 1966.
Spill-pattern manipulation to guide migrant salmon upstream. -- Trans. Am. Fish. Soc. 95(4):397-407.

Sockeye Salmon, Chinook Salmon - Mature / Washington / Artificial Obstruction / Guiding

948

Levanidov, V.Y. 1952.
The osmoregulatory ability of young fall chum salmon migrating downstream. -- Izv. Tikhookean. Nauchno-Issled. Inst. Rybn. Khoz. Okeanogr. 37:252-253 (Pp.245-247 in Pacific salmon: selected articles from Soviet periodicals. -- Jerusalem: Israel Program for Scientific Translations. 1961.).

Chum Salmon - Fry / River / Seawater Adaptation, Osmoregulatory and Excretory System - Physiological and Biochemical Aspects

949

Levy, D.A., and T.G. Northcote. 1982.
Juvenile salmon residency in a marsh area of the Fraser River estuary. -- Can. J. Fish. Aquat. Sci. 39(2):270-276.

Chinook Salmon, Chum Salmon, Pink Salmon - Juvenile / Southern British Columbia / Estuary / Pattern, Seasonal Timing / Marking, Count

950

Leyzerovich, Kh.A., and M.N. Mel'nikova. 1979.
The seaward migration of dwarf males of the Atlantic salmon, Salmo salar, and their return to the river. -- J. Ichthyol. 19(1):164-167.

Atlantic Salmon - Adult / Migration (General)

951

Lichtenheld, R.W. 1966.
Effect of light, temperature and gamma radiation on the locomotor activity of juvenile steelhead trout. -- Ph.D. thesis. -- University of Washington, Seattle, Washington. -- 254p.

Steelhead Trout - Juvenile / Behaviour - Time of Year, Photoperiod, Water Temperature, Time of Day / Smoltification - Photoperiod / Imprinting and Learning

952

Lindroth, A. 1952.
Salmon tagging experiments in Sundsvall Bay of the Baltic in 1950. -- Rep. Inst. Freshwater Res. Drottningholm 33:57-69.

Atlantic Salmon - Mature / Iceland and Northern Europe / Estuary, River / Route, Speed of Migration / Tagging

953

Lindroth, A., P.O. Larsson, and G. Bertmar. 1982.
Where does the Baltic salmon go? -- Monogr. Biol. 45:387-414.

Atlantic Salmon / Iceland and Northern Europe / Migration (General)

954

Lindsay, S.T., and H. Thompson. 1932.
Biology of the salmon (Salmo salar L.) taken in Newfoundland waters in 1931. -- Rep. Newfoundland Fish. Res. Comm. 1(2):80p.

Atlantic Salmon - Adult / Atlantic Canada and United States / Inshore / Route, Horizontal Distribution (Geographic) - Water Temperature / Stock Identification - Scale Analysis / Tagging

955

Lindsey, C.C., T.G. Northcote, and G.F. Hartman. 1959.
Homing of rainbow trout to inlet and outlet spawning streams of Loon Lake, British Columbia. -- J. Fish. Res. Board Can. 16(5):695-719.

Steelhead Trout - Juvenile, Mature / Southern British Columbia / Lake, Tributary / Direction - Genetic Aspects / Homing, Straying, Direction Finding (General) / Marking

956

Liscom, K.L. 1971.
Orifice placement in gatewells of turbine intakes for bypassing juvenile fish around dams. -- Trans. Am. Fish. Soc. 100(2):319-324.

Salmon (General) - Juvenile / Artificial Obstruction / Guiding

957

Liscom, K.L. 1973.
Sonic tags of sockeye salmon, Oncorhynchus nerka, give travel time through metropolitan waters. -- Mar. Fish. Rev. 35(9):38-41.

Sockeye Salmon - Mature / Washington / River, Reservoir or Impoundment / Vertical Distribution, Route, Pattern / Speed of Migration - Time of Year / Sonic or Radio Tracking

958

Liscom, K.L., G.E. Monan, and L.C. Stuehrenberg. 1979.
Radio tracking studies relating to fallback at hydroelectric dams on the Columbia and Snake Rivers. -- U.S. Army Corps Eng. North Pac. Div. Fish. Eng. Res. Program Prog. Rep. 5:39-53.

Chinook Salmon, Steelhead Trout - Mature / Washington, Oregon / Artificial Obstruction / Pattern, Speed of Migration - Obstruction / Sonic or Radio Tracking

959

Lister, D.B., L.M. Thorson, and I. Wallace. 1981.
Chinook and coho salmon escapements and coded-wire tag returns to the Cowichan-Koksilah River system 1976-1979. -- Can. Manuscr. Rep. Fish. Aquat. Sci. 1608:78p.

Chinook Salmon, Coho Salmon - Mature / Southern British Columbia / River, Tributary / Diel Timing, Seasonal Timing, Homing, Straying / Initiation of Stream Entry - Water Level and Flow Rate, Water Temperature / Tagging

960

Lister, D.B., and C.E. Walker. 1966.
The effect of flow control on freshwater survival of chum, coho and chinook salmon in the Big Qualicum River. -- Can. Fish. Cult. 37:3-25.

Chinook Salmon - Fry / Southern British Columbia / River / Seasonal Timing

961

Loeffel, R.E. 1970.
Determination of movement and identity of stocks of coho salmon in the ocean using the radionuclide Zinc 65. -- Res. Rep. Fish Comm. Oreg. 2(1):15-27.

Coho Salmon - Immature / Washington, Pacific Ocean (General) / Inshore, Open Ocean / Route / Stock Identification - Biogeochemical Analysis

962

Long, C.W. 1959.
Passage of salmonids through a darkened fishway. -- U.S. Fish Wildl. Serv. Spec. Sci. Rep. Fish. 300:9p.

Steelhead Trout - Mature / Artificial Obstruction / Speed of Migration - Light Intensity

963

Long, C.W. 1968.
Diel movement and vertical distributon of juvenile anadromous fish in turbine intakes. -- Fish. Bull 66(3):599-609.

Steelhead Trout, Chinook Salmon - Juvenile / Artificial Obstruction / Vertical Distribution, Diel Timing

964

Lopez, E. 1969.
Etude histophysiologique des Corpuscles de Stannius de _Salmo salar_ L. au cours de diverses étapes de son cycle vital. -- Gen. Comp. Endocrinol. 12:339-349.

Atlantic Salmon / Osmoregulatory and Excretory System - Physiological and Biochemical Aspects (Stage of Migration)

965

Loretz, C.A., N.L. Collie, N.H. Richman, and H.A. Bern. 1982.
Osmoregulatory changes accompanying smoltification in coho salmon. -- Aquaculture 28(1/2):67-74.

Coho Salmon - Smolt / Smoltification, Osmoregulatory and Excretory System, Thyroid system - Physiological and Biochemical Aspects

966

Lorz, H.W., and B.P. McPherson. 1976.
Effects of copper or zinc in fresh water on the adaptation to sea water and ATPase activity, and the effects of copper on migratory disposition of coho salmon, *Oncorhynchus kisutch*. -- J. Fish. Res. Board Can. 33(9):2023-2030.

Coho Salmon - Juvenile / Seawater Adaptation, Osmoregulatory and Excretory System - Physiological and Biochemical Aspects (Pollutants) / Initiation of Downstream Migration - Pollutants

967

Lorz, H.W., and T.G. Northcote. 1965.
Factors affecting stream location, and timing and intensity of entry by spawning kokanee (*Oncorhynchus nerka*) into an inlet of Nicola Lake, British Columbia. -- J. Fish. Res. Board Can. 22(3):665-687.

Sockeye Salmon - Landlocked, Mature / Southern British Columbia / Lake, Tributary / Initiation of Stream Entry - Weather / Direction Finding (General) - Odours, Visual images / Diel Timing - Time of Year / Pattern, Seasonal Timing, Speed of Migration / Occlusion, Hydroacoustics, Marking

968

Lyamin, K.A. 1949.
Results of tagging Pacific salmon in the Gulf of Kamchatka. -- Izv. Tikhookean. Nauchno-Issled. Inst. Rybn. Khoz. Okeanogr. 31:173-176 (Pp.184-190 *in* Pacific salmon: selected articles from Soviet periodicals. -- Jerusalem: Israel Program for Scientific Translations. 1961.).

Sockeye Salmon, Chum Salmon, Coho Salmon - Mature / Eastern Kamchatka to Chuchuki Peninsula / Inshore, River / Route, Speed of Migration / Tagging

969

Lysaya, N.M. 1951.
Changes in the blood composition of salmon during the spawning migration. -- Izv. Tikhookean. Nauchno-Issled. Inst. Rybn. Khoz. Okeanogr. 35:47-60 (Pp.199-215 *in* Pacific salmon: selected articles from Soviet periodicals. -- Jerusalem: Israel Program for Scientific Translations. 1961.).

Pink Salmon, Chum Salmon - Mature / River / Freshwater Adaptation, Circulatory system - Physiological and Biochemical Aspects

970

MacCrimmon, H.R., and B.L. Gots. 1979.
World distribution of Atlantic salmon, _Salmo salar_. -- J. Fish. Res. Board Can. 36(4):422-447.

Atlantic Salmon / Horizontal Distribution (Geographic)

971

MacDonald, J.R. 1970.
An occurence of male predominance among repeat spawning Atlantic salmon (_Salmo salar_). -- J. Fish. Res. Board Can. 27(8):1491-1492.

Atlantic Salmon - Mature / Migration (General)

972

Machidori, S. 1966.
Vertical distribution of salmon (genus _Oncorhynchus_) in the northwestern Pacific I. -- Bull. Hokkaido Reg. Fish. Res. Lab. 31:11-17.

In Japanese; English abstract.

Coho Salmon, Chum Salmon, Sockeye Salmon, Pink Salmon - Immature, Mature / Western Pacific Ocean, Bering Sea / Open Ocean / Vertical Distribution - Time of Day / Capture

973

Machidori, S. 1968.
Vertical distribution of salmon (genus _Oncorhynchus_) in the northwestern Pacific III. -- Bull. Hokkaido Reg. Fish. Res. Lab. 34:1-11.

In Japanese; English abstract.

Sockeye Salmon, Chum Salmon - Immature / Western Pacific Ocean, Eastern Kamchatka to Chuchuki Peninsula / Open Ocean, Inshore / Vertical Distribution - Food Availability / Capture

974

Machidori, S. 1972.
Distribution and direction of movement of coho salmon at early stage of spawning migration in the northwestern

North Pacific Ocean. -- Bull. Far Seas Fish. Res. Lab. 6:95-100.

In Japanese; English abstract.

Coho Salmon - Mature / Western Pacific Ocean, Central Pacific Ocean / Open Ocean / Horizontal Distribution (Geographic) - Water Temperature / Direction, Speed of Migration / Capture, Tagging

975

Machidori, S. 1972.
Observations on latitudinal distribution of offshore coho salmon in early summer, with reference to water temperature and food organisms. -- Bull. Far Seas Res. Lab. 6:101-108.

In Japanese; English abstract.

Coho Salmon - Adult / Western Pacific Ocean, Central Pacific Ocean / Open Ocean / Horizontal Distribution (Geographic) - Water Temperature, Food Availability / Capture

976

Machidori, S., T. Okazaki, S. Ito, and J. Ogasawara. 1978.
Masu salmon (Oncorhynchus masou) found in the offshore waters in the northwestern North Pacific Ocean. -- Bull. Far Seas Fish. Res. Lab. 16:1-7.

In Japanese; English abstract.

Masu Salmon - Adult / Western Pacific Ocean / Open Ocean / Horizontal Distribution (Geographic) / Capture

977

MacKinnon, D. 1950.
A comparison of the current, light and grouping behaviour of the chum salmon migrant (Oncorhynchus keta) and the coho salmon fry (Oncorhynchus kisutch) with special reference to the effect of thyroxine, thiourea and testosterone on some of these reactions. -- M.A. thesis. -- University of British Columbia, Vancouver, British Columbia.

Chum Salmon, Coho Salmon - Fry / Taxis - Current, Light Intensity (Thyroid system, Gonadal system)

978

MacKinnon, D., and W.S. Hoar. 1953.
Responses of coho and chum salmon fry to current. -- J. Fish. Res. Board Can. 10(8):523-538.

Chum Salmon, Coho Salmon - Fry / Preference - Behaviour / Taxis - Current / Direction Finding (General), Voluntary Displacement / Laboratory Study

979

MacLeod, R.A., R.E.E. Jonas, and E. Onofrey. 1960.
A biochemical study of coho salmon (Oncorhynchus kisutch) maturing sexually in an aquarium. -- J. Fish. Res. Board Can. 17(3):323-335.

Coho Salmon - Mature / River / Organ Systems (General), Digestive system - Physiological and Biochemical Aspects (Stage of Migration) / Energetics, Freshwater Adaptation / Laboratory Study

980

Madison, D.M., and A.D. Hasler. 1971.
Recent advances in salmon orientation. -- Am. Zool. 11(4):629-630.

Coho Salmon, Sockeye Salmon - Mature / Inshore / Imprinting and Learning / Sonic or Radio Tracking

981

Madison, D.M., R.M. Horrall, A.B. Stasko, and A.D. Hasler. 1972.
Migratory movements of adult sockeye salmon (Oncorhynchus nerka) in coastal British Columbia as revealed by ultrasonic tracking. -- J. Fish. Res. Board Can. 29(7):1025-1033.

Sockeye Salmon - Mature / Northern British Columbia / Inshore / Route, Direction / Speed of Migration - Time of Day / Sonic or Radio Tracking

982

Madison, D.M., A.T. Scholz, J.C. Cooper, R.M. Horrall, A.D. Hasler, and A.E. Dizon. 1973.
Olfactory hypotheses and salmon migration: a synopsis of recent findings. (Aspects of migration and orientation in Pacific salmon I). -- Fish. Res. Board Can. Tech. Rep. 414:35p.

Coho Salmon - Juvenile, Mature / Salmon (General) - Mature / Great Lakes / Lake, Tributary / Direction Finding (General), Pattern - Odours / Homing / Imprinting and Learning / Sonic or Radio Tracking, Marking

983

Maeda, T. 1959.
Study on the salmon fishing grounds in the North Pacific Ocean. -- Bull. Fac. Fish. Hokkaido Univ. 9(4):268-282.

In Japanese; English abstract.

Chum Salmon, Sockeye Salmon - Adult / Western Pacific Ocean, Central Pacific Ocean / Open Ocean / Horizontal Distribution (Geographic), Seasonal Timing, Direction / Capture

984

Maeda, T., S. Mishima, and I. Saito. 1959.
Studies on the fishing grounds. -- Bull. Fac. Fish. Hokkaido Univ. 10(1):47-56.

In Japanese; English abstract.

Pacific Salmon (General) / Sea of Okhotsk / Open Ocean / Direction, Route - Water Temperature, Salinity / Hydroacoustics

985

Maeda, T., M. Ueno, and I. Saito. 1957.
Studies on deep scattering layer: on the D.S.L. off the west coast of Kamchatka Peninsula. -- Bull. Fac. Fish. Hokkaido Univ. 7(4):284-290.

In Japanese; English abstract.

Pacific Salmon (General) / Sea of Okhotsk / Open Ocean / Vertical Distribution - Water Temperature, Food Availability / Capture

986

Magomedov, G.M. 1970.
Some data on the chum salmon (Oncorhynchus keta (Walb.) acclimatized in the Caspian Sea. -- J. Ichthyol. 10(4):552-555.

Chum Salmon - Mature / Southern Europe / River / Seasonal Timing

987

Mahnken, C., E. Prentice, W. Waknitz, G. Monan, C. Sims, and J. Williams. 1982.
The application of recent smoltification research to public hatchery releases: an assessment of size/time requirements for Columbia River hatchery coho salmon (*Oncorhynchus kisutch*). -- Aquaculture 28(1/2):251-268.

Coho Salmon - Fingerling, Smolt / Osmoregulatory and Excretory System, Seawater Adaptation - Physiological and Biochemical Aspects, Size and Growth / Smoltification, Desmoltification - Photoperiod, Size and Growth

988

Mahr, F.P., and P.A. Larkin. 1954.
Life history of the steelhead trout in the Chilliwack River, British Columbia. -- Trans. Am. Fish. Soc. 84:27-38.

Steelhead Trout - Smolt / Southern British Columbia / River / Seasonal Timing

989

Mains, J.E., and J.M. Smith. 1956.
Determination of the normal stream distribution, size, time and current preferences of downstream migrating salmon and steelhead trout in the Columbia and Snake Rivers. -- U.S. Army Corps of Eng. North Pac. Div. Fish. Eng. Res. Program Prog. Rep. 1:14-26.

Steelhead Trout, Chinook Salmon - Fry, Fingerling / Washington, Oregon / River, Artificial Obstruction / Vertical Distribution, Seasonal Timing, Pattern, Diel Timing / Preference - Current / Capture

990

Mains, E.M., and J.M. Smith. 1964.
The distribution, size, time and current preferences of seaward migrant chinook salmon in the Columbia and Snake rivers. -- Wash. Dep. Fish. Fish. Res. Pap. 2(3):5-43.

Chinook Salmon - Juvenile / Washington / River / Seasonal Timing, Initiation of Downstream Migration - Water Level and Flow Rate / Diel Timing, Pattern, Vertical Distribution / Preference - Current

991

Major, R.L., J. Ito, S. Ito, and H. Godfrey. 1978.
Distribution and origin of chinook salmon (*Oncorhynchus*

tshawytscha) in offshore waters of the North Pacific Ocean. -- Int. North Pac. Fish. Comm. Bull. 38:54p.

Chinook Salmon - Immature, Mature / Pacific Ocean (General) / Open Ocean / Horizontal Distribution (Geographic) - Water Temperature / Vertical Distribution, Route, Seasonal Timing / Tagging, Capture / Stock Identification - Scale Analysis

992

Major, R.L., and J.L. Mighell. 1967.
Influence of Rocky Reach Dam and the temperature of the Okanagan River on the upstream migration of sockeye salmon. -- Fish. Bull. 66(1):131-147.

Sockeye Salmon - Mature / Washington / River, Artificial Obstruction / Speed of Migration - Obstruction, Water Temperature / Initiation of Stream Entry, Termination of Migration - Water Temperature / Seasonal Timing / Tagging

993

Major, R.L., K.H. Mosher, and J.E. Mason. 1972.
Identification of stocks of Pacific salmon by means of scale features. Pp.209-231 in R.C. Simon and P.A. Larkin (ed.). The stock concept in Pacific salmon. H.R. MacMillan Lectures in Fisheries, 1970. -- Institute of Animal Resource Ecology, Vancouver, British Columbia.

Pacific Salmon (General) / Stock Identification - Scale Analysis

994

Malikova, E.M. 1957.
Biochemical analysis of young salmon at the time of their transformation to a condition close to the smolt stage, and during retention of smolts in fresh water. -- Tr. Vses. Nauchno-Issled. Inst. Morsk. Rybn. Khoz. Okeanogr. 2:241-255 (Fish. Res. Board Can. Transl. Ser. 232).

Salmon (General) - Fingerling, Smolt / Skeletal and Integumentary System - Morphological Aspects (Time of Year) / Smoltification, Digestive System - Physiological and Biochemical Aspects / Desmoltification

995

Malinin, L.K. 1969.
Home range and homing instinct of fish. -- Zool. Zh. 48(3):381-391 (Fish. Res. Board Can. Transl. Ser. 2050).

Salmon (General) / Homing / Direction Finding (General) - Odours, Celestial Cues

996

Malinin, L.K. 1973.
Speed of fish migration. -- Rybn. Khoz. 8:16-17 (Fish. Mar. Ser. Can. Transl. Ser. 3146).

Chum Salmon, Sockeye Salmon, Pink Salmon, Atlantic Salmon / Open Ocean, River / Speed of Migration

997

Malinin, L.K. 1975.
Speed of swimming in *Salmo salar* under anadromous migration in freshwater. -- *Zool. Zh.* 54(11):1729-1731.

In Russian; English abstract.

Atlantic Salmon - Mature / River / Speed of Migration, Behaviour / Sonic or Radio Tracking

998

Malinin, L.K. 1976.
[The efficiency coefficient of fish during spawning migration.] -- Bionika Resp. Mezhved. Sb. 10:96-98.

In Russian; Not seen.

Salmon (General) / River / Energetics

999

Malinin, L.K., A.G. Poddubnyi, and V.L. Baturin. 1978.
[Experiments in tagging of the Baltic salmon with ultrasonic transmitters.] -- Inf. Biull. Biol. Vnutr. Vod 38:86-88.

In Russian; Not seen.

Atlantic Salmon / Sonic or Radio Tracking

1000

Malinin, L.K., A.G. Poddubnyi, and A.M. Svirskii. 1973.
Telemetric investigation of fish behavior. Pp.286-287 *in* Materialy Vsesoiuznogo Soveshchaniya Formirovanie i Regulironvanie Estestvennoi Kormovoi Bazy Iskusstvennykh Vodoemov. -- Vserossiiski Nauchno-Issledovatel'skii Institut Prudovogo Rybnogo Khoziaistva, Moskva, USSR. (Fish. Mar. Serv. (Can.) Transl. Ser. 3232).

Atlantic Salmon - Mature / Iceland and Northern Europe / River / Pattern, Behaviour - Current / Sonic or Radio Tracking

1001

Malinin, L.K., A.G. Poddubnyi, and A.M. Svirskii. 1974.
Behaviour of Atlantic salmon (Salmo salar L.) in the course of a spawning migration through a reservoir. -- Zh. Obshch. Biol. 35(4):645-649 (Fish. Mar. Serv. (Can.) Transl. Ser. 3457).

Atlantic Salmon - Mature / Iceland and Northern Europe / Reservoir or Impoundment / Speed of Migration, Pattern / Diel Timing - Light Intensity / Direction Finding (General) - Landmarks, Sound / Sonic or Radio Tracking

1002

Malyukina, G.A., N.G. Dmitrieva, E.A. Marusov, and G.V. Yukevich. 1969.
Smell and its role in the behaviour of fish. -- Zoologiya 1968:32-78 (Fish. Res. Board Can. Transl. Ser. 1513).

Salmon (General) / Direction Finding (General) - Odours

1003

Manzer, J.I. 1958.
Salmon distribution and abundance in the northeast Pacific, 1956 and 1957, with some comparisons with other regions of the North Pacific and the Bering Sea. -- Fish. Res. Board Can. Manuscr. Rep. Ser. (Biol.) 656:8p.

Sockeye Salmon, Chinook Salmon, Coho Salmon, Chum Salmon, Pink Salmon - Adult / Bering Sea, Central Pacific Ocean, Eastern Pacific Ocean, Western Pacific Ocean / Open Ocean / Horizontal Distribution (Geographic) - Time of Year, Water Temperature / Capture

1004

Manzer, J.I. 1964.
Preliminary observations on the vertical distribution of Pacific salmon (genus Oncorhynchus) in the Gulf of Alaska. -- J. Fish. Res. Board Can. 21(5):891-903.

Sockeye Salmon, Chum Salmon - Adult / Eastern Pacific Ocean / Open Ocean / Vertical Distribution - Time of Day (Time of Year, Water Temperature) / Capture

1005

Manzer, J.I. 1969.
Additional information on the migration of pink salmon in southern British Columbia and Washington in 1945, as shown by tagging. -- Fish. Res. Board Can. Manuscr. Rep. Ser. 1022:6p.

Pink Salmon - Mature / Southern British Columbia, Washington / Inshore / Route / Tagging

1006

Manzer, J.I. 1972.
On the relation between lacustrine growth and production of age 1.2 sockeye (Oncorhynchus nerka) in Great Central Lake prior to experimental nutrient enrichment. -- Fish. Res. Board Can. Tech. Rep. 324:31p.

Sockeye Salmon - Mature / Southern British Columbia / Lake, Tributary / Seasonal Timing

1007

Manzer, J.I., T.H. Bilton, and K.H. Mosher. 1960.
The ocean distribution of sockeye salmon originating in Rivers and Smith Inlets. -- Fish. Res. Board Can. Manuscr. Rep. Ser. (Biol.) 702:5p.

Sockeye Salmon - Adult / Northern British Columbia, Southern British Columbia, Eastern Pacific Ocean / Inshore, Open Ocean / Route / Stock Identification - Scale Analysis

1008

Manzer, J.I., and A.J. Dodimead. 1965.
Winter distribution of salmon in the northeast Pacific Ocean, January 7 to February 7, 1964, with some reference to oceanographic conditions. -- Fish. Res. Board Can. Manuscr. Rep. Ser. (Biol.) 824:5p.

Coho Salmon, Chinook Salmon, Pink Salmon, Chum Salmon, Steelhead Trout, Sockeye Salmon - Adult / Eastern Pacific Ocean / Open Ocean / Seasonal Timing / Horizontal Distribution (Geographic) - Water Temperature, Salinity, Age

1009

Manzer, J.I., T. Ishida, A.E. Peterson, and M.G. Hanavan. 1965.
Salmon of the North Pacific Ocean: Part V. Offshore distribution of salmon. -- Int. North Pac. Fish. Comm. Bull. 15:451p.

Sockeye Salmon, Chum Salmon, Pink Salmon, Coho Salmon, Chinook Salmon - Immature, Mature / Pacific Ocean (General) / Open Ocean / Pattern - Water Temperature / Capture

1010

Manzer, J.I., and R.J. LeBrasseur. 1959.
Further observations on the vertical distribution of salmon in the northeast Pacific. -- Fish. Res. Board Can. Manuscr. Rep. Ser. (Biol.) 689:9p.

Sockeye Salmon, Coho Salmon, Chum Salmon, Pink Salmon - Adult / Eastern Pacific Ocean / Open Ocean / Vertical Distribution - Time of Year, Water Temperature / Vertical Movement / Capture

1011

Manzer, J.I., and M.P. Shepard. 1962.
Marine survival, distribution and migration of pink salmon off the British Columbia coast. Pp.113-122 in N.J. Wilimovsky (ed.). Symposium on pink salmon. H.R. MacMillan Lectures in Fisheries, 1960. -- Institute of Fisheries, University of British Columbia, Vancouver, British Columbia.

Pink Salmon - Immature, Mature / Southern British Columbia, Northern British Columbia / Inshore / Pattern, Route, Seasonal Timing

1012

Margolis, L. 1956.
Report on parasite studies of sockeye and pink salmon collected in 1955, with special reference to the utilization of parasites as a means of distinguishing between Asiatic and American stocks of salmon on the high seas: a progress report on work being carried out as part of F.R.B.'s commitments to INPFC. -- Fish. Res. Board Can. Manuscr. Rep. Biol. Stn. 624:20p.

Sockeye Salmon, Pink Salmon / Pacific Ocean (General) / Stock Identification - Parasite Tags

1013

Margolis, L. 1957.
A study of the parasites of sockeye and pink salmon with particular attention to their application in distinguishing between Asiatic and North American stocks of these fish on the high seas: report of results of examination of 1956 samples. -- Fish. Res. Board Can. Mansucr. Rep. Ser. (Biol.) 641:24p.

Sockeye Salmon, Pink Salmon / Pacific Ocean (General) / Stock Identification - Parasite Tags

1014

Margolis, L. 1958.
An application of parasitological data to the problem of recognizing the continent of origin of stocks of sockeye salmon in the North Pacific Ocean and adjacent seas: a summary of three years (1955 through 1957). -- Fish. Res. Board Can. Manuscr. Rep. Ser. (Biol.) 658:15p.

Sockeye Salmon - Adult / Pacific Ocean (General) / Open Ocean, Inshore / Route / Horizontal Distribution (Geographic) - Time of Year / Stock Identification - Parasite Tags

1015

Margolis, L. 1959.
Report on parasitological studies of sockeye salmon collected in 1958 with some comparisons with other years. -- Fish. Res. Board Can. Manuscr. Rep. Ser. (Biol.) 687:14p.

Sockeye Salmon / Pacific Ocean (General) / Stock Identification - Parasite Tags

1016

Margolis, L. 1960.
Report on the use of parasites to determine the continental origin of sockeye salmon taken on the high seas from May to August, 1959. -- Fish. Res. Board Can. Mansucr. Rep. Ser. (Biol.) 703:13p.

Sockeye Salmon / Pacific Ocean (General) / Stock Identification - Parasite Tags

1017

Margolis, L. 1963.
Parasites as indicators of the geographical origin of sockeye salmon, Oncorhynchus nerka (Walbaum), occurring in the North Pacific Ocean and adjacent seas. -- Int. North Pac. Fish. Comm. Bull. 11:101-156.

Sockeye Salmon - Adult / Pacific Ocean (General) / Open Ocean / Route / Stock Identification - Parasite Tags

1018

Margolis, L. 1975.
The geographic origin of sockeye salmon occurring in the Japanese landbased driftnet fishery area in the North

Pacific Ocean: a review of evidence from parasite "tags". -- Fish. Res. Board Can. Manuscr. Rep. Ser. 1363:3p.

Sockeye Salmon / Pacific Ocean (General) / Stock Identification - Parasite Tags

1019

Margolis, L., F.C. Cleaver, Y. Fukuda, and H. Godfrey. 1966.
Salmon of the North Pacific Ocean: Part VI. Sockeye salmon in offshore waters. -- Int. North Pac. Fish. Comm. Bull. 20:70p.

Sockeye Salmon - Immature, Mature / Pacific Ocean (General) / Open Ocean / Seasonal Timing, Horizontal Distribution (Geographic), Direction, Speed of Migration, Route / Tagging, Capture / Stock Identification - Parasite Tags, Morphometrics and Meristics, Scale Analysis, Electrophoresis and Serology

1020

Marine Ecology Research Institute (Tokyo). 1980.
Bibliographical study on the relation between the aquatic organisms of coastal waters and the environmental conditions. -- Marine Ecology Reseearch Institute, Tokyo, Japan. -- 237p.

English edition.

Masu Salmon, Chum Salmon, Pink Salmon - Mature / Chum Salmon - Fry / Japan / Inshore, River / Horizontal Distribution (Geographic) - Water Temperature / Seasonal Timing / Initiation of Downstream Migration - Water Temperature

1021

Marini, G., and T.H. Kerstetter. 1982.
Intracellular electrolyte regulation in freshwater and seawater-adapted coho salmon. -- Aquaculture 28(1/2):75-80.

Coho Salmon - Smolt / Seawater Adaptation, Osmoregulatory and Excretory System - Physiological and Biochemical Aspects

1022

Markert, J.R., and W.E. Vanstone. 1966.
Pigments in the belly skin of coho salmon (Oncorhynchus kisutch). -- J. Fish. Res. Board Can. 23(7):1095-1098.

Coho Salmon - Fingerling, Smolt / Southern British Columbia / Smoltification, Skeletal and Integumentary System

- Morphological Aspects, Physiological and Biochemical Aspects / Laboratory Study

1023

Marquette, W.M., and C.W. Long. 1971.
Laboratory studies of screens for diverting juvenile salmon and trout from turbine intakes. -- Trans. Am. Fish. Soc. 100(3):439-447.

Salmon (General) - Juvenile / Artificial Obstruction / Guiding / Laboratory Study

1024

Marriott, R.A. 1963.
Lake Kulik smolt enumeration, 1961. -- Univ. Wash. Fish. Res. Inst. Circ. 175:29p.

Sockeye Salmon - Smolt / Western Alaska / Lake, River / Seasonal Timing, Diel Timing / Count

1025

Marriott, R.A. 1965.
1963 Kvichak River red salmon smolt studies. -- Alaska Dep. Fish Game Inf. Leafl. 48:42p.

Sockeye Salmon - Smolt / Western Alaska / River, Lake / Seasonal Timing / Count

1026

Martynova, G.I. 1981.
Age dynamics of the olfactory organ structure of the sockeye Oncorhynchus nerka. -- Biol. Morya 1981(5):57-59.

In Russian; English abstract.

Sockeye Salmon - Fingerling, Smolt, Adult / Olfactory system - Morphological Aspects (Age)

1027

Maslova, M.N., and M.M. Sokolova. 1981.
Humoral regulation of magnesium secretion by the kidneys of the downstream migrating sockeye salmon, Oncorhynchus nerka. -- J. Ichthyol. 21(1):162-167.

Sockeye Salmon - Juvenile / Osmoregulatory and Excretory System, Seawater Adaptation - Physiological and Biochemical Aspects / Laboratory Study

1028

Mason, J.C. 1974.
Aspects of the ecology of juvenile coho salmon (Oncorhynchus kisutch) in Great Central Lake, B.C. -- Fish. Res. Board Can. Tech. Rep. 438:37p.

Sockeye Salmon, Coho Salmon - Fingerling / Southern British Columbia / Lake / Pattern / Capture

1029

Mason, J.C. 1974.
Behavioral ecology of chum salmon fry (Oncorhynchus keta) in a small estuary. -- J. Fish. Res. Board Can. 31(1):83-92.

Chum Salmon - Fry / Southern British Columbia / River, Estuary / Behaviour, Pattern - Tide / Seawater Adaptation, Initiation of Downstream Migration

1030

Mason, J.C. 1974.
Movements of fish populations in Lynn Creek, Vancouver Island: a summary from weir operations during 1971 and 1972 including comments on species life histories. -- Fish. Mar. Serv. (Can.) Tech. Rep. 483:35p.

Coho Salmon - Fry, Mature / Sockeye Salmon - Smolt, Fry / Southern British Columbia / River / Seasonal Timing, Initiation of Downstream Migration - Tide / Voluntary Displacement / Initiation of Downstream Migration - Population Density / Non Migratory Movements / Count

1031

Mason, J.C. 1976.
Some features of coho salmon, Oncorhynchus kisutch fry emerging from simulated redds and concurrent changes in photobehavior. -- Fish. Bull. 74(1):167-175.

Coho Salmon - Alevin / Taxis - Light Intensity, Current / Direction, Diel Timing, Behaviour / Laboratory Study

1032

Mason, J.E. 1953.
The distribution of four anadromous members of the genus Salmo in the northern hemisphere. -- Prog. Fish Cult. 15(2):51-56.

Steelhead Trout, Atlantic Salmon / Horizontal Distribution (Geographic) - Water Temperature

1033

Mason, J.E. 1965.
Salmon of the North Pacific Ocean: Part IX. Coho, chinook and masu salmon in offshore waters. 2. Chinook salmon in offshore waters. -- Int. North Pac. Fish. Comm. Bull. 16:41-73.

Chinook Salmon - Immature, Mature / Pacific Ocean (General) / Open Ocean / Horizontal Distribution (Geographic), Route / Capture, Tagging

1034

Mathisen, O.A. 1969.
Tagging experiments in Bristol Bay, Alaska in 1946 and 1947. -- Univ. Wash. Fish. Res. Inst. Circ. 69-1:15p.

Sockeye Salmon - Mature / Western Alaska / Estuary / Pattern / Tagging

1035

Mathisen, O.A., R.L. Burgner, and T.S.Y. Koo. 1963.
Statistical records and computations on red salmon (Oncorhynchus nerka) runs in the Nushagak District, Bristol Bay, Alaska, 1946-59. -- U.S. Fish Wildl. Serv. Spec. Sci. Rep. Fish. 468:32p.

Sockeye Salmon - Mature / Western Alaska / River / Seasonal Timing

1036

Mathisen, O.A., and T. Gudjonsson. 1978.
Salmon management and ocean ranching in Iceland. -- Isl. Landbun. J. Agric. Res. Iceland 10(2):156-174.

Atlantic Salmon - Immature, Mature / Iceland and Northern Europe / Inshore, Open Ocean / Route - Current

1037

Mathisen, O.A., and P.H. Poe. 1969.
Studies of Lake Clark and its sockeye salmon runs, 1961-1968. -- Univ. Wash. Fish. Res. Inst. Circ. 69-5:21p.

Sockeye Salmon - Mature / Western Alaska / River / Seasonal Timing, Speed of Migration / Tagging

1038

Mattson, C.R. 1952.
Early recovery of a chum salmon in the Columbia River. -- Fish Comm. (Oreg.) Res. Briefs 4(1):39.

Chum Salmon - Mature / Oregon / River / Seasonal Timing

1039

Maximovich, A.A., A.D. Bartkova, V.V. Plyusin, and V.M. Bondareva. 1978.
Ultrastructure and function of pancreatic B-cells in the Pacific salmon, Oncorhynchus gorbuscha, during the spawning migration. -- Biol. Moria 1978(6):61-69.

In Russian; English abstract.

Pink Salmon - Mature / River / Endocrine System (General) - Physiological and Biochemical Aspects (Stage of Migration) / Laboratory Study

1040

Maxwell, H. 1901.
The habits of salmon. -- Ann. Scott. Nat. Hist. 1901:146-154.

Atlantic Salmon - Mature / Migration (General)

1041

May, A.W. 1973.
Distribution and migrations of salmon in the northeast Atlantic. -- Int. Atlantic Salmon Found. Spec. Publ. 4(1):373-382.

Atlantic Salmon - Immature, Mature / Western North Atlantic, Atlantic Canada and United States, Greenland / Inshore, Open Ocean / Route, Horizontal Distribution (Geographic) / Tagging

1042

Mayama, H. 1978.
Ecological observations on the adult salmon: II. Diurnal variation of upstream migration of the adult chum salmon in the Chitose River. -- Sci. Rep. Hokkaido Salmon Hatchery 32:9-18.

In Japanese; English abstract.

Chum Salmon - Mature / Japan / River / Initiation of Upstream Migration, Diel Timing - Light Intensity, Turbidity, Water Level and Flow Rate, Population Density

1043

Mayama, H., M. Kato, J. Seki, and I. Shimizu. 1982.
Studies on the chum salmon released in the Ishikari River system: I. On the seaward migration and inshore distribution of liberated fry in 1979. -- Sci. Rep. Hokkaido Salmon Hatchery 36:1-17.

In Japanese; English abstract.

Chum Salmon - Immature / Japan / Estuary, Inshore / Pattern, Route / Marking

1044

Mayama, H., and T. Takahaski. 1977.
Ecological observations on the adult salmon: I. Diurnal variation of upstream migration of the adult salmon in the Chitose River (1.). -- Sci. Rep. Hokkaido Salmon Hatchery 31:21-28.

In Japanese; English abstract.

Chum Salmon - Mature / Japan / River / Initiation of Upstream Migration, Diel Timing - Water Level and Flow Rate

1045

McBride, J.R., U.H.M. Fagerlund, M. Smith, and N. Tomlinson. 1963.
Resumption of feeding by and survival of adult sockeye salmon (Oncorhynchus nerka) following advanced gonad development. -- J. Fish. Res. Board Can. 20(1):95-100.

Sockeye Salmon - Mature / Migration (General)

1046

McBride, J.R., U.H.M. Fagerlund, M. Smith, and N. Tomlinson. 1964.
Olfactory perception in juvenile salmon: II. Conditioned response of juvenile sockeye salmon (Oncorhynchus nerka) to lake waters. -- Can. J. Zool. 24:245-248.

Sockeye Salmon - Smolt / Olfactory system - Physiological and Biochemical Aspects / Laboratory Study

1047

McBride, J.R., D.A. Higgs, U.H.M. Fagerlund, and J.T. Buckley. 1982.
Thyroid and steroid hormones: potential for control of growth and smoltification of salmonids. -- Aquaculture 28(1/2):201-209.

Salmon (General) / Smoltification - Size and Growth

1048

McCart, P. 1967.
Behavior and ecology of sockeye salmon fry in the Babine River. -- J. Fish. Res. Board Can. 24(2):375-428.

Sockeye Salmon - Alevin, Fry / Northern British Columbia / River / Direction, Diel Timing, Behaviour, Pattern, Schooling / Seasonal Timing - Water Temperature / Taxis - Current / Count

1049

McCarthy, D. 1978.
Movements of salmon around Ireland: 12. From the coast of west County Cork. -- Proc. Roy. Ir. Acad. Sect. B 78:273-279.

Atlantic Salmon - Mature / Southern Europe / Inshore / Route, Speed of Migration / Tagging

1050

McCarthy, D.T. 1972.
The ecology of brown trout and salmon in the River Owenea, County Donegal. -- Ir. Fish. Invest. Ser. A 9:26p.

Atlantic Salmon - Smolt / Southern Europe / River / Initiation of Downstream Migration, Termination of Migration - Water Temperature / Count

1051

McCartney, T.H. 1976.
Sodium - potasium dependent adenosine triphosphatase activity in gills and kidneys of Atlantic salmon (Salmo salar). -- Comp. Biochem. Physiol. 53A(4):351-353.

Atlantic Salmon - Smolt / Osmoregulatory and Excretory System, Smoltification - Physiological and Biochemical Aspects / Laboratory Study

1052

McCleave, J.D. 1978.
Rhythmic aspects of estuarine migration of hatchery-reared Atlantic salmon (Salmo salar) smolts. -- J. Fish Biol. 12:559-570.

Atlantic Salmon - Smolt / Atlantic Canada and United States / Estuary, River / Pattern, Voluntary Displacement / Speed of Migration - Tide, Time of Day / Vertical Distribution - Time of Day, Tide / Initiation of Downstream Migration - Water Temperature, Photoperiod

1053

McCleave, J.D., J.H. Power, and S.A. Rommel. 1978.
Use of radio telemetry for studying upriver migration of adult Atlantic salmon (Salmo salar). -- J. Fish Biol. 12(6):549-558.

Atlantic Salmon - Mature / River / Sonic or Radio Tracking

1054

McCleave, J.D., S.A. Rommel, and C.L. Cathcart. 1971.
Weak electric and magnetic fields in fish orientation. Pp.270-281 in H.E. Adler (ed.). Orientation: sensory basis. -- Ann. N.Y. Acad. Sci. 188.

Atlantic Salmon / Orientation - Magnetic Field, Electric Fields / Laboratory Study

1055

McCully, H. 1956.
An undescribed type of migration in king salmon, Oncorhynchus tshawytscha (Walbaum). -- Calif. Fish Game 42(3):189-198.

Chinook Salmon - Mature / California / River, Inshore / Reverse Migration / Tagging

1056

McDonald, J. 1960.
The behaviour of Pacific salmon fry during their downstream migration to freshwater and saltwater nursery areas. -- J. Fish. Res. Board Can. 17(5):655-676.

Chum Salmon, Coho Salmon, Pink Salmon, Sockeye Salmon - Fry / Northern British Columbia / Tributary / Pattern, Diel Timing, Initiation of Downstream Migration, Schooling -

Light Intensity, Time of Year, Turbidity / Vertical Distribution - Time of Day

1057

McDonald, J. 1973.
Diel vertical movements and feeding habits of underyearling sockeye salmon (Oncorhynchus nerka), at Babine Lake, B.C. -- Fish. Res. Board Can. Tech. Rep. 378:53p.

Sockeye Salmon - Fingerling / Northern British Columbia / Lake / Vertical Movement, Vertical Distribution - Time of Day, Water Temperature, Food Availability / Capture, Hydroacoustics

1058

McDonald, J. 1981.
The stock concept and its application to British Columbia salmon fisheries. -- Can. J. Fish. Aquat. Sci. 38(12):1657-1664.

Pacific Salmon (General) - Adult / Route, Seasonal Timing / Stock Identification

1059

McGregor, E.A. 1922.
Migrating salmon at the Redding Dam. -- Calif. Fish Game 8(3):141-154.

Chinook Salmon - Mature / California / River, Artificial Obstruction / Behaviour - Obstruction

1060

McGregor, E.A. 1923.
A possible separation of the river races of king salmon in ocean-caught fish by means of anatomical characters. -- Calif. Fish Game 9(4):138-150.

Chinook Salmon / California / Stock Identification - Morphometrics and Meristics

1061

McInerney, J.E. 1964.
Salinity preference: an orientation mechanism in salmon migration. -- J. Fish. Res. Board Can. 21(5):995-1018.

Pacific Salmon (General) - Immature / Pink Salmon, Coho Salmon, Chinook Salmon, Chum Salmon - Juvenile / Estuary, Inshore / Direction Finding (General), Preference - Salinity / Laboratory Study

1062

McKeown, B.A. 1970.
Immunological identification and quantification of pituitary hormones in sockeye salmon (Oncorhynchus nerka, Walbaum). -- Ph.D. thesis. -- Simon Fraser University, Burnaby, British Columbia.

Sockeye Salmon - Juvenile, Mature / River / Freshwater Adaptation, Seawater Adaptation, Pituitary system - Physiological and Biochemical Aspects

1063

McKeown, B.A., and A.P. van Overbeeke. 1969.
Immunohistochemical localization of ACTH and prolactin in the pituitary gland of migratory sockeye salmon (Oncorhynchus nerka). -- J. Fish. Res. Board Can. 26(7):1837-1846.

Sockeye Salmon - Mature / Inshore, River / Pituitary system - Morphological Aspects, Physiological and Biochemical Aspects (Stage of Migration) / Laboratory Study

1064

McKeown, B.A., and A.P. van Overbeeke. 1972.
Prolactin and growth hormone concentrations in the serum and pituitary gland of adult migratory sockeye salmon, (Oncorhynchus nerka). -- J. Fish. Res. Board Can. 29(3):303-309.

Sockeye Salmon - Mature / Inshore, Estuary, River / Pituitary system, Endocrine System (General) - Physiological and Biochemical Aspects (Stage of Migration) / Freshwater Adaptation / Laboratory Study

1065

McKern, J.L., H.F. Horton, and K.V. Koski. 1974.
Development of steelhead trout (Salmo gairdneri) otoliths and their use for age analysis and for separating summer from winter races and wild from hatchery stocks. -- J. Fish. Res. Board Can. 31(8):1420-1426.

Steelhead Trout / Stock Identification - Scale Analysis

1066

McKernan, D.L., and C.R. Mattson. 1950.
Observations on pulp and paper effluents and the probable effects of this pollutant on the fisheries resources of the Willamette River in Oregon. -- Fish Comm. (Oreg.) Res. Briefs 3(1):14-21.

Chinook Salmon - Juvenile / Oregon / River / Seasonal Timing - Pollutants / Capture

1067

McLeay, D.J. 1970.
A histometric investigaton of the activity of the pituitary-interrenal axis in juvenile coho salmon, *Oncorhynchus kisutch* Walbaum. -- Ph.D. thesis. -- University of British Columbia, Vancouver, British Columbia.

Coho Salmon - Juvenile / Smoltification - Interrenal system, Pituitary system, Physiological and Biochemical Aspects

1068

McLeay, D.J. 1975.
Variations in the pituitary-interrenal axis and the abundance of circulating blood-cell types in juvenile coho salmon, *Oncorhynchus kisutch*, during stream residence. -- Can. J. Zool. 53:1882-1891.

Coho Salmon - Fingerling / Smoltification - Pituitary system, Interrenal system / Laboratory Study

1069

McMurdy, M.L. 1969.
1968 Bristol Bay sockeye salmon smolt studies. -- Alaska Dep. Fish Game Inf. Leafl. 138:95p.

Sockeye Salmon - Smolt / Western Alaska / River, Lake / Seasonal Timing / Count

1070

McMurrich, J.P. 1913.
The life history of the Pacific salmon. -- Trans. Can. Inst. 9(20):23-44.

Pacific Salmon (General) / Migration (General)

1071

Meehan, W.R. 1961.
Use of a fishwheel in salmon research and management. -- Trans. Am. Fish. Soc. 90(4):490-494.

Pink Salmon - Mature / Central Alaska / River / Initiation of Upstream Migration, Seasonal Timing - Turbidity, Water Level and Flow Rate / Count

1072

Meehan, W.R., and D.B. Siniff. 1962.
A study of downstream migrations of anadromous fishes in the Taku River, Alaska. -- Trans. Am. Fish. Soc. 91(4):399-407.

Chinook Salmon, Coho Salmon, Chum Salmon, Sockeye Salmon - Juvenile / Southeastern Alaska / River / Seasonal Timing, Diel Timing / Initiation of Downstrean Migration - Size and Growth / Count

1073

Meek, A. 1916.
The migration of fish. -- Edward Arnold, London, England. -- 427p.

Salmon (General) / Migration (General)

1074

Meister, A.L. 1962.
Atlantic salmon production in Cove Brook, Maine. -- Trans. Am. Fish. Soc. 91(2):208-212.

Atlantic Salmon - Smolt / Atlantic Canada and United States / River / Seasonal Timing / Count

1075

Mel'nikova, M.N. 1970.
Some features of young Atlantic salmon (*Salmo salar* L.) in several rivers in the White Sea basin. -- J. Ichthyol. 10(3):311-319.

Atlantic Salmon - Juvenile / Iceland and Northern Europe / River / Initiation of Downstream Migration, Seasonal Timing - Water Temperature

1076

Menshutkin, V.V., Yu.V. Natochin, and G.S. Vaynyunskaya. 1976.
Mathematical modelling of water-salt balance and the function of the kidneys of the sockeye salmon, *Oncorhynchus nerka*. -- J. Ichthyol. 16(2):303-308.

Sockeye Salmon - Juvenile / Seawater Adaptation, Osmoregulatory and Excretory System - Physiological and Biochemical Aspects / Modelling

1077

Menzies, W.J.M. 1937.
The movements of salmon marked in the sea: I. The north-west coast of Scotland in 1936. -- Fish. Board Scotl. Salmon Fish. 1937(1):17p.

Atlantic Salmon - Mature, Adult / Southern Europe / Inshore / Route, Speed of Migration / Marking

1078

Menzies, W.J.M. 1938.
Some preliminary observations on the migrations of salmon (*Salmo salar*) on the coasts of Scotland. -- Rapp. P.-V. Reun. Cons. Int. Explor. Mer 108(3):17-35.

Atlantic Salmon - Mature / Southern Europe / Inshore / Route, Homing / Tagging

1079

Menzies, W.J.M. 1938.
The movements of salmon marked in the sea: II. The west coast of Sutherland in 1937. -- Fish. Board Scotl. Salmon Fish. 1938(1):9p.

Atlantic Salmon - Adult, Mature / Southern Europe / Inshore / Route, Speed of Migration / Marking

1080

Menzies, W.J.M. 1938.
The movements of salmon marked in the sea: III. The island of Soay and Ardnamurchan in 1938. -- Fish. Board Scotl. Salmon Fish. 1938(7):9p.

Atlantic Salmon - Adult, Mature / Iceland and Northern Europe / Inshore / Route, Speed of Migration / Marking

1081

Menzies, W.J.M. 1939.
Some preliminary observations on the migrations of the European salmon. Pp.13-25 *in* F.R. Moulton (ed.). The migration and conservation of salmon. -- Publ. Amer. Assoc. Adv. Sci. 8.

Atlantic Salmon - Immature, Mature / Iceland and Northern Europe, Southern Europe / Inshore / Route, Speed of Migration

1082

Menzies, W.J.M. 1947.
Salmon migration at sea. -- Nature 160:33-34.

Atlantic Salmon - Adult / Atlantic Ocean (General) / Inshore, Open Ocean / Route

1083

Menzies, W.J.M., and W.M. Shearer. 1957.
Long distance migration of salmon. -- Nature 179:790.

Atlantic Salmon - Immature / Southern Europe, Greenland / Route / Tagging

1084

Merrell, T.R. 1955.
Adult steelhead rapid migrations. -- Res. Briefs Fish Comm. Oreg. 6(1):18.

Atlantic Salmon - Mature, Kelt / Oregon / River / Speed of Migration / Tagging

1085

Merrell, T.R. 1963.
Ecological studies of sockeye salmon and related limnological and climatological investigations, Brooks Lake, Alaska, 1957. -- U.S. Fish Wildl. Serv. Spec. Sci. Rep. Fish. 456:66p.

Sockeye Salmon - Fry, Fingerling, Mature / Western Alaska / River, Lake, Tributary / Seasonal Timing, Behaviour, Reverse Migration, Pattern, Route / Diel Timing, Direction / Vertical Distribution - Time of Year, Time of Day / Vertical Movement - Food Availability / Count, Capture, Tagging

1086

Merriman, D., and Y. Jean. 1949.
The capture of an Atlantic salmon (Salmo salar salar) in the Conneticut River. -- Copeia 1949:220-221.

Atlantic Salmon / Atlantic Canada and United States / Horizontal Distribution (Geographic)

1087

Messersmith, J.D. 1965.
Southern range extensions for chum and silver salmon. -- Calif. Fish Game 51(3):220.

Chum Salmon, Coho Salmon - Adult / California / Inshore / Horizontal Distribution (Geographic)

1088

Messinger, H.B., and H.T. Bilton. 1974.
Factor analysis on discriminating the racial origin of sockeye salmon (Oncorhynchus nerka). -- J. Fish. Res. Board Can. 31(1):1-10.

Sockeye Salmon / Stock Identification - Scale Analysis

1089

Mihara, T. 1958.
An ecological study on the salmon fry, Oncorhynchus keta, in the coastal waters of Hokkaido. -- Sci. Rep. Hokkaido Salmon Hatchery 13:1-14 (Fish. Res. Board Can. Transl. Ser. 226).

Chum Salmon - Fry / Japan / River, Estuary / Speed of Migration, Seasonal Timing / Initiation of Downstream Migration - Water Temperature

1090

Miles, H.M. 1969.
Renal function in migrating adult coho salmon. -- Ph.D. thesis. -- University of Washington, Seattle, Washington. -- 91p.

Coho Salmon - Mature / Inshore, River / Freshwater Adaptation, Osmoregulatory and Excretory System - Physiological and Biochemical Aspects

1091

Miles, H.M. 1971.
Renal function in migrating adult coho salmon. -- Comp. Biochem. Physiol. 38A:787-826.

Coho Salmon - Mature / Inshore, River / Osmoregulatory and Excretory System - Physiological and Biochemical Aspects (Stage of Migration) / Freshwater Adaptation / Laboratory Study

1092

Miles, H.M., and L.S. Smith. 1968.
Ionic regulation in migrating juvenile coho salmon, Oncorhynchus kisutch. -- Comp. Biochem. Physiol. 26:381-398.

Coho Salmon - Juvenile / Seawater Adaptation, Osmoregulatory and Excretory System - Physiological and Biochemical Aspects / Laboratory Study

1093

Miller, D.M., and G.P. Stauffer. 1967.

Study of the migration and spawning distribution of the runs of chinook and coho in the Green-Duwamish River system in the fall of 1965. -- Univ. Wash. Fish. Res. Inst. Circ. 67-4:21p.

Chinook Salmon, Coho Salmon - Mature / Washington / Estuary, River / Seasonal Timing, Pattern / Initiation of Upstream Migration - Water Level and Flow Rate, Weather / Sonic or Radio Tracking, Tagging

1094

Miller, M.C. 1979.

Trends in catch timing and distribution of the Washington troll salmon fishery, 1960-1975. -- Wash. Dep. Fish. Tech. Rep. 49:56p.

Chinook Salmon, Coho Salmon, Pink Salmon - Adult / Washington / Inshore / Seasonal Timing / Capture

1095

Miller, R.J., and E.L. Brannon. 1982.

The origin and development of life history patterns in Pacific salmonids. Pp.296-309 *in* E.L. Brannon and E.O. Salo (ed.). Proceedings of the Salmon and Trout Migratory Behavior Symposium. -- School of Fisheries, University of Washington, Seattle, Washington.

Pacific Salmon (General) / Migration (General) - Evolution

1096

Miller, W.H. 1971.

Factors influencing migration of chinook salmon fry (*Oncorhynchus tshawytscha*) in the Salmon River, Idaho. -- Ph.D. thesis. -- University of Idaho, Moscow, Idaho. -- 92p.

Chinook Salmon - Fry / River / Initiation of Downstream Migration - Water Temperature, Population Density, Light Intensity, Genetic Aspects

1097

Mills, D.H. 1964.

The ecology of the young stages of the Atlantic salmon in the River Bran, Ross-shire. -- Scotl. Dep. Agric. Fish. Freshwater Salmon Fish. Res. 32:58p.

Atlantic Salmon - Smolt / Southern Europe / River / Seasonal Timing, Initiation of Downstream Migration - Water Level and Flow Rate, Water Temperature / Count

1098

Milne, D.J. 1950.
Moricetown Falls as a hazard to salmon migration. -- Bull. Fish. Res. Board Can. 86:16p.

Sockeye Salmon, Chinook Salmon, Coho Salmon, Pink Salmon - Mature / Northern British Columbia / River, Natural Obstruction / Seasonal Timing, Speed of Migration - Obstruction / Reverse Migration / Tagging

1099

Milne, D.J. 1955.
The Skeena River salmon fishery, with special reference to sockeye salmon. -- J. Fish. Res. Board Can. 12(3):451-485.

Sockeye Salmon - Mature / Northern British Columbia / Inshore / Vertical Distribution - Weather

1100

Milne, D.J. 1957.
Recent British Columbia spring and coho salmon tagging experiments, and a comparison with those conducted from 1925 to 1930. -- Bull. Fish. Res. Board Can. 113:56p.

Chinook Salmon, Coho Salmon - Immature, Mature / Southern British Columbia, Northern British Columbia, Washington, Southeastern Alaska / Inshore / Route / Tagging

1101

Milne, D.J., E.A.R. Ball, H.M. Jensen, and E. Jewell. 1959.
Progress report No. 3 on the 1958 joint tagging experiment on coho salmon in the Strait of Juan de Fuca by Canada and the United States. -- Fish. Res. Board Can. Manuscr. Rep. Ser. (Biol.) 679:16p.

Coho Salmon - Mature / Southern British Columbia, Washington / Inshore / Route / Tagging

1102

Milne, D.J., E.A.R. Ball, H.M. Jensen, and E. Jewell. 1959.
Progress report on the 1957 coho salmon study in the

Strait of Juan de Fuca by Canada and the United States. -- Fish. Res. Board Can. Manuscr. Rep. Ser. (Biol.) 677:68p.

Coho Salmon - Mature / Southern British Columbia, Washington / Inshore / Route, Speed of Migration / Tagging

1103

Milne, R.S. 1979.
Studies on the thyroid physiology of two salmonid fishes, Salmo gairdneri, and Oncorhynchus kisutch. -- Ph.D. thesis. -- University of Guelph, Guelph, Ontario.

Steelhead Trout, Coho Salmon / Osmoregulatory and Excretory System - Physiological and Biochemical Aspects, Thyroid system

1104

Milne, R.S., and J.F. Leatherland. 1980.
Studies on the relationship between osmotic or ionic regulation and thyroid gland activity in two salmonid fishes, Salmo gairdneri Richardson and Oncorhynchus kisutch Walbaum. -- J. Fish Biol. 16(4):349-360.

Steelhead Trout, Coho Salmon - Smolt / Osmoregulatory and Excretory System - Physiological and Biochemical Aspects, Thyroid system / Seawater Adaptation / Laboratory Study

1105

Mishima, S. 1971.
On the longitudinal distribution and biological features of salmon species at 52 deg - 30 min N latitute in the west coast off Kamchatka Peninsula. -- Bull. Fac. Fish. Hokkaido Univ. 22(3):243-253.

In Japanese; English abstract.

Sockeye Salmon, Pink Salmon, Coho Salmon, Chum Salmon - Adult / Sea of Okhotsk / Open Ocean / Horizontal Distribution (Geographic) - Time of Year, Age / Preference - Salinity (Age) / Capture

1106

Mishima, S. 1974.
Latitudinal distribution of salmon at longtitude 167 degrees - 30 minutes E in the early spring in the northwestern North Pacific, 1971-1973. -- Bull. Fac. Fish. Hokkaido Univ. 25(1):36-46.

In Japanese; English abstract.

Sockeye Salmon, Chum Salmon, Pink Salmon - Adult / Western Pacific Ocean, Central Pacific Ocean / Open Ocean / Horizontal Distribution (Geographic) - Salinity, Size and Growth, Water Temperature / Capture

1107

Mishima, S., T. Maeda, and M. Ueno. 1966.
Studies on the fishing grounds: II. On the correlation between the migration of salmon and oceanographical condition of the Okhotsk Sea. -- Bull. Jap. Soc. Sci. Fish. 32(7):543-548.

In Japanese; English abstract.

Pacific Salmon (General) - Adult / Sea of Okhotsk / Inshore, Open Ocean / Route - Water Temperature, Salinity, Current / Capture

1108

Mishima, S., S. Saito, and K. Shimazaki. 1966.
Study on the daily vertical movement of salmon: I. On the tendency of netting by the gill net (1). -- Bull. Jap. Soc. Sci. Fish. 32(11):922-930

In Japanese; English abstract.

Pink Salmon, Chum Salmon - Adult / Sea of Okhotsk / Open Ocean / Vertical Movement / Capture

1109

Mishima, S., and K. Shimazaki. 1969.
On the diurnal change of salmon catch by the gill-net in the Okhotsk Sea. -- Bull. Fac. Fish. Hokkaido Univ. 20(1):5-21.

Pink Salmon, Coho Salmon, Chum Salmon, Sockeye Salmon - Adult / Sea of Okhotsk / Open Ocean / Vertical Movement, Behaviour / Capture

1110

Mishima, S., and K. Shimazaki. 1969.
On the schooling behavior of salmon. -- Bull. Fac. Fish. Hokkaido Univ. 19(4):261-272.

In Japanese; English abstract.

Pink Salmon - Adult / Sea of Okhotsk, Western Pacific Ocean / Open Ocean / Vertical Movement, Schooling / Capture

1111

Mishima, S., M. Ueno, and R. Kawashima. 1965.
On the spatial distribution of salmon by means of the analysis from the catch of fish per unit net. -- Bull. Jap. Soc. Sci. Fish. 31(4):269-280.

In Japanese; English abstract.

Pink Salmon, Chum Salmon, Sockeye Salmon, Coho Salmon - Adult / Sea of Okhotsk, Western Pacific Ocean / Open Ocean, Inshore / Schooling / Capture

1112

Miyaguchi, K., and T. Ishida. 1957.
On the observation of scale pattern of pink salmon. -- Bull. Hokkaido Reg. Fish. Res. Lab. 16:49-55.

In Japanese; English abstract.

Pink Salmon / Sea of Japan, Sea of Okhotsk, Western Pacific Ocean / Stock Identification - Scale Analysis

1113

Miyazaki, T. 1938.
Influences of meteorological and oceanographical factors on the incoming salmons on the east coast of Kamchatka. -- Bull. Jap. Soc. Sci. Fish. 7(4):207-212.

In Japanese; English abstract.

Coho Salmon, Chum Salmon, Sockeye Salmon - Mature / Eastern Kamchatka to Chuchuki Peninsula / Inshore / Migration (General)

1114

Moffett, J.W., and S.H. Smith. 1950.
Biological investigations of the fishery resources of Trinity River, California. -- U.S. Fish Wildl. Serv. Spec. Sci. Rep. Fish. 12:71p.

Chinook Salmon - Juvenile, Mature / Steelhead Trout - Juvenile, Mature, Kelt / California / River, Tributary / Seasonal Timing, Initiation of Upstream Migration - Water Temperature / Diel Timing / Initiation of Downstream Migration - Weather / Termination of Migration - Water Level and Flow Rate, Water Temperature / Count / Initiation of Stream Entry - Water Level and Flow Rate, Weather

1115

Mommsen, T.P., C.J. French, and P.W. Hochachka. 1980.
Sites and patterns of protein and amino acid utilization during the spawning migration of salmon. -- Can. J. Zool. 58:1785-1799.

Sockeye Salmon - Mature / Inshore, River, Tributary / Digestive system - Physiological and Biochemical Aspects (Stage of Migration) / Energetics, Freshwater Adaptation / Laboratory Study

1116

Monan, G.E., J.H. Johnson, and G.F. Esterberg. 1975.
Electronic tags and related tracking techniques in study of migrating salmon and steelhead trout in the Columbia River Basin. -- Mar. Fish. Rev. 37(2):9-15.

Pacific Salmon (General), Steelhead Trout / Washington / River / Sonic or Radio Tracking

1117

Monan, G.E., K.L. Liscom, and L.C. Stuehrenberg. 1979.
Radio-tracking studies to determine the effects of peaking on adult chinook salmon and steelhead. -- U.S. Army Corps Eng. North Pac. Div. Fish. Eng. Res. Program Prog. Rep. 5:31-38.

Chinook Salmon, Steelhead Trout - Mature / Washington, Oregon / Artificial Obstruction / Pattern - Obstruction, Current / Sonic or Radio Tracking

1118

Monan, G.E., R.J. McConnell, J.R. Pugh, and J.R. Smith. 1969.
Distribution of debris and downstream-migrating salmon in the Snake River above Brownlee Reservoir. -- Trans. Am. Fish. Soc. 98(2):239-244.

Chinook Salmon, Coho Salmon - Juvenile / Colorado, Idaho / Reservoir or Impoundment / Vertical Distribution - Time of Day / Pattern

1119

Moore, H.L., and H.W. Newman. 1956.
Effects of sound waves on young salmon. -- U.S. Fish Wildl. Serv. Spec. Sci. Rep. Fish. 172:19p.

Salmon (General) - Juvenile / Guiding

1120

Morgan, A.R., and F.C. Cleaver. 1954.
The 1951 Alsea River silver salmon tagging program. -- Oreg. Fish. Comm. Contrib. 21:30p.

Coho Salmon - Mature / Oregon / River / Speed of Migration, Pattern / Tagging

1121

Moriarty, C. 1962.
Movement of salmon. -- Nature 196:595.

Atlantic Salmon - Adult / Iceland and Northern Europe, Southern Europe / Route / Tagging

1122

Moriarty, C. 1968.
Movements of salmon around Ireland: 10. From the north Mayo Coast (1962-1964). -- Proc. Roy. Ir. Acad. Sect. B 66:1-7.

Atlantic Salmon - Mature / Southern Europe / Inshore / Route, Speed of Migration / Tagging

1123

Morisawa, M., T. Hirano, and K. Suzuki. 1979.
Changes in blood and seminal plasma composition of the mature salmon (Oncorhynchus keta) during adaptation to freshwater. -- Comp. Biochem. Physiol. 64A:325-329.

Chum Salmon - Mature / River / Freshwater Adaptation, Circulatory system , Reproductive system, Osmoregulatory and Excretory System - Physiological and Biochemical Aspects (Stage of Migration) / Laboratory Study

1124

Morris, R.T. 1937.
"Flying" salmon. -- Science 86:442.

Atlantic Salmon - Mature / Natural Obstruction / Behaviour

1125

Morton, F.G. 1929.
Salmon-tagging experiments in Alaska, 1927 and 1928. -- Bull. Bur. Fish. (U.S.) 45:1-23.

Sockeye Salmon, Pink Salmon, Chum Salmon, Coho Salmon, Chinook Salmon - Mature / Southeastern Alaska, Central Alaska, Western Alaska / Inshore / Route / Tagging

1126

Moser, J.F. 1901.
Alaska salmon investigations in 1900 and 1901. -- Bull. U.S. Fish. Comm. 21:173-398.

Pacific Salmon (General) - Mature / Western Alaska / Inshore, Estuary / Initiation of Stream Entry - Weather

1127

Mosher, K.H. 1963.
Racial analysis of red salmon by means of scales. -- Int. North Pac. Fish. Comm. Bull. 11:31-56.

Sockeye Salmon - Adult / Pacific Ocean (General) / Open Ocean / Route / Stock Identification - Scale Analysis

1128

Mosher, K.H. 1972.
Scale features of sockeye salmon from Asian and North American coastal region. -- Fish. Bull. 70:141-183.

Sockeye Salmon / Pacific Ocean (General) / Stock Identification - Scale Analysis

1129

Mottley, C.M. 1929.
Pacific salmon migration: report on the study of the scales of the spring salmon, *Oncorhynchus tshawytscha*, tagged in 1926 and 1927 off the west coast of Vancouver Island. -- Contr. Can. Biol. Fish. 4(30):471-494.

Chinook Salmon - Immature, Mature / Southern British Columbia / Inshore / Route - Current, Food Availability / Initiation of Homing Migration - Current, Tide

1130

Mundy, P.R. 1979.
A quantitative measure of migratory timing illustrated by application to the management of commercial salmon fisheries. -- Ph.D. thesis. -- University of Washington, Seattle, Washington. -- 94p.

Sockeye Salmon, Salmon (General) / Seasonal Timing / Modelling

1131

Munroe, W.R. 1969.
The occurence of salmon in the sea off the Faroes. -- Scott. Fish. Bull. 32:11-13.

Atlantic Salmon - Adult / Iceland and Northern Europe, Southern Europe / Inshore / Route, Horizontal Distribution (Geographic) / Tagging

1132

Murphy, G.I., and L. Shapovalov. 1951.
A preliminary analysis of northern California salmon and steelhead runs. -- Calif. Fish Game 37(4):497-507.

Chinook Salmon, Coho Salmon, Steelhead Trout - Mature / California / River / Seasonal Timing / Count

1133

Murray, A.R. 1966.
A summary of the commercial Atlantic salmon of Newfoundland and Labrador examined by special observers, 1953-1963. -- Fish. Res. Board Can. Manuscr. Rep. Ser. (Biol.) 885:89p.

Atlantic Salmon - Mature, Immature / Atlantic Canada and United States / Inshore / Route / Tagging

1134

Murray, A.R. 1968.
Numbers of Atlantic salmon and brook trout captured and marked at the Little Codroy River, Newfoundland counting fence and auxiliary tags. -- Fish. Res. Board Can. Tech. Rep. 84:135p.

Atlantic Salmon - Smolt / Atlantic Canada and United States / Estuary / Seasonal Timing, Diel Timing / Count

1135

Nagahama, Y., S. Adachi, F. Tashiro, and E.G. Grau. 1982.
Some endocrine factors affecting the development of seawater tolerance during the parr-smolt transformation of the amago salmon. -- Aquaculture 28(1/2):81-90.

Amago Salmon - Smolt, Fingerling / Seawater Adaptation, Osmoregulatory and Excretory System - Physiological and Biochemical Aspects (Time of Year) / Smoltification - Thyroid system

1136

Nagahama, Y., W.C. Clarke, and W.S. Hoar. 1977.
Influence of salinity on ultrastructure of the secretory cells of the adenohypophyseal pars distalis in yearling coho salmon (Oncorhynchus kisutch). -- Can. J. Zool. 55:183-198.

Coho Salmon - Juvenile / Seawater Adaptation / Pituitary system - Morphological Aspects, Physiological and Biochemical Aspects / Osmoregulatory and Excretory System - Physiological and Biochemical Aspects / Laboratory Study

1137

Nagahama, Y., and K. Yamamoto. 1970.
Morphological studies on the pituitary of the chum salmon, Oncorhynchus keta: I. Fine structure of the adenohypophysis. -- Bull. Fac. Fish. Hokkaido Univ. 20(4):293-301.

In Japanese; English abstract.

Chum Salmon - Mature / Pituitary system - Morphological Aspects / Laboratory Study

1138

Nagahama, Y., and K. Yamamoto. 1970.
Morphological studies on the pituitary of the chum salmon, Oncorhynchus keta: II. Changes of the prolactin cells during the life-cycle. -- Bull. Fac. Fish. Hokkaido Univ. 21(3):169-177.

Chum Salmon - Juvenile, Immature, Mature / Pituitary system - Morphological Aspects (Stage of Migration) / Laboratory Study

1139

Naganuma, K. 1967.
Consideration on the formation of fishing grounds for pink salmon, saury and squid on the offshore frontal zones of the Japan Sea. -- Bull. Jap. Sea Reg. Fish. Res. Lab. 18:93-107.

In Japanese; English abstract.

Pink Salmon - Adult / Sea of Japan / Open Ocean / Horizontal Distribution (Geographic) - Water Temperature, Current / Capture

1140

Nagasawa, A., and S. Sano. 1961.
Some observations on the downstream chum salmon fry (O. keta) counted in the natural spawning ground at Memu stream. -- Sci. Rep. Hokkaido Salmon Hatchery 16:107-125.

In Japanese; English abstract.

Chum Salmon - Fry / Japan / River / Seasonal Timing / Count

1141

Nakatani, R.E. 1960.
Changes in blood levels of non-protein nitrogen and arginine during the upstream migration of Columbia River blueback salmon (Oncorhynchus nerka). -- Ph.D. thesis. -- University of Washington, Seattle, Washington. -- 159p.

Sockeye Salmon - Mature / Washington / River / Circulatory system - Physiological and Biochemical Aspects (Stage of Migration) / Laboratory Study

1142

Nakatani, R.E., G.J. Paulik, and R. Van Cleve. 1975.
Pink salmon, Oncorhynchus gorbuscha, tagging experiments in southeastern Alaska, 1938-42 and 1945. -- NOAA Tech. Rep. NMFS SSRF 686:39p.

Pink Salmon - Mature / Southeastern Alaska / Inshore / Speed of Migration, Seasonal Timing, Random Movement, Direction Finding (General)

1143

Nakatso, L.M 1960.
The eastern Hokkaido land-based salmon fishery of Japan. -- U.S. Fish Wildl. Serv. Spec. Sci. Rep. Fish. 331:9p.

Chum Salmon, Pink Salmon, Sockeye Salmon - Mature / Japan, Western Pacific Ocean / Inshore, Open Ocean / Seasonal Timing / Horizontal Distribution (Geographic)

1144

Nall, G.H. 1955.
Movements of salmon and sea trout, chiefly kelts, and of brown trout tagged in the Tweed between January and May, 1937 and 1938. -- Scott. Home Dep. Freshwater Salmon Fish. Res. 10:19p.

Atlantic Salmon - Mature, Kelt / Southern Europe / River / Direction, Reverse Migration, Route / Tagging

1145

Narver, D.W. 1967.
Diel vertical movement of pelagic sockeye salmon juveniles. -- Fish. Res. Board Can. Manuscr. Rep. Ser. 949:24-29.

Sockeye Salmon - Juvenile / Northern British Columbia / Lake / Vertical Movement - Time of Year, Food Availability / Capture, Hydroacoustics

1146

Narver, D.W. 1970.
Diel vertical movements and feeding of underyearling sockeye salmon and the limnetic zooplankton in Babine Lake, British Columbia. -- J. Fish. Res. Board Can. 27(2):281-316.

Sockeye Salmon - Fingerling / Northern British Columbia / Lake / Vertical Movement - Time of Year, Food Availability / Hydroacoustics, Capture

1147

Natochin, Yu.V., L.S. Krayushkina, M.N. Maslova, M.M. Sokolova, V.T. Bakhteyeva, and Ye.A. Lavrova. 1975.
Enzyme activity in gills and kidneys and endocrine factors in the regulation of ion exchange in downstream migrating and spawning sockeye salmon, Oncorhynchus nerka. -- J. Ichthyol. 15(1):115-124.

Sockeye Salmon - Mature, Juvenile / Osmoregulatory and Excretory System - Physiological and Biochemical Aspects, Morphological Aspects / Laboratory Study

1148

Natochin, Yu.V., and E.A. Lavrova. 1974.
The influence of water salinity and stage in life history on ion concentration of fish blood serum. -- J. Fish Biol. 6(5):545-555.

Sockeye Salmon, Pink Salmon - Juvenile, Mature / River / Osmoregulatory and Excretory System - Physiological and Biochemical Aspects (Stage of Migration) / Laboratory Study

1149

Neave, F. 1943.
Diurnal fluctuations in the upstream migration of coho and spring salmon. -- J. Fish. Res. Board Can. 6(2):158-163.

Coho Salmon, Chinook Salmon - Mature / Southern British Columbia / River / Diel Timing, Initiation of Upstream Migration - Light Intensity / Count

1150

Neave, F. 1944.
Racial characteristics and migratory habits in Salmo gairdneri. -- J. Fish. Res. Board Can. 6(3):245-251.

Steelhead Trout / Migration (General) - Genetic Aspects

1151

Neave, F. 1951.
Observations on troll-caught salmon of the west coast of Vancouver Island, 1949. -- Pac. Mar. Fish. Comm. Bull 2:93-101.

Coho Salmon, Chinook Salmon - Immature, Mature / Inshore / Route / Tagging

1152

Neave, F. 1955.
Notes on the seaward migration of pink and chum salmon fry. -- J. Fish. Res. Board Can. 12(3):369-374.

Pink Salmon, Chum Salmon - Fry / Southern British Columbia, Northern British Columbia / River / Diel Timing, Initiation of Downstream Migration - Light Intensity / Taxis - Current / Vertical Distribution, Schooling, Behaviour

1153

Neave, F. 1960.
Observations on the vertical distribution of salmon in the northeast Pacific, 1960. -- Fish. Res. Board Can. Manuscr. Rep. Ser. (Biol.) 701:5p.

Chum Salmon, Sockeye Salmon - Adult / Eastern Pacific Ocean / Open Ocean / Vertical Distribution - Water Temperature / Vertical Movement

1154

Neave, F. 1962.
Ocean migration patterns of Pacific salmon. -- Bull. Ecol. Soc. Amer. 43(3):83-84.

Pacific Salmon (General) / Migration (General)

1155

Neave, F. 1962.
Salmon tagging by Canada in the Gulf of Alaska. -- Fish. Res. Board Can. Manuscr. Rep. Ser. (Biol.) 732:6p.

Sockeye Salmon, Pink Salmon, Chum Salmon - Mature / Northern British Columbia, Southern British Columbia, Western Alaska, Central Alaska, Southeastern Alaska, Eastern Pacific Ocean / Open Ocean, Inshore / Route / Tagging

1156

Neave, F. 1964.
Ocean migrations of Pacific salmon. -- J. Fish. Res. Board Can. 21(5):1227-1244.

Pacific Salmon (General) - Immature, Mature / Pacific Ocean (General) / Open Ocean, Inshore / Homing, Route / Direction Finding (General) - Current, Water Temperature, Salinity, Celestial Cues

1157

Neave, F., T. Ishida, and S. Murai. 1967.
Salmon of the North Pacific Ocean: Part VII. Pink salmon in offshore waters. -- Int. North Pac. Fish. Comm. Bull. 22:39p.

Pink Salmon - Immature, Mature / Pacific Ocean (General) / Open Ocean / Seasonal Timing, Vertical Distribution, Horizontal Distribution (Geographic) - Water Temperature, Food Availability / Route / Tagging, Capture / Stock Identification - Scale Analysis, Morphometrics and Meristics

1158

Neave, F., and J.I. Manzer. 1959.
Progress report on Canadian exploratory fishing for salmon in the northeast Pacific in 1959. -- Fish. Res. Board Can. Manuscr. Rep. Ser. (Biol.) 683:8p.

Sockeye Salmon, Pink Salmon, Coho Salmon, Chum Salmon - Adult / Eastern Pacific Ocean / Open Ocean / Horizontal Distribution (Geographic) / Capture

1159

Neave, F., J.I. Manzer, M.P. Shepard, and H.T. Bilton. 1964.
Distribution and relative abundance of pink salmon in offshore waters, 1964, with special reference to central British Columbia stocks. -- Fish. Res. Board Can. Manuscr. Rep. Ser. (Biol.) 786:29p.

Pink Salmon - Adult / Eastern Pacific Ocean, Northern British Columbia, Southern British Columbia, Washington / Inshore, Open Ocean / Route / Horizontal Distribution (Geographic) / Stock Identification - Scale Analysis / Capture, Tagging

1160

Neave, F., M.P. Shepard, J.I. Manzer, and H.T. Bilton. 1965.
Distribution and relative abundance of pink salmon in offshore waters, with special reference to the stocks of central British Columbia. -- Fish. Res. Board Can. Manuscr. Rep. Ser. (Biol.) 823:11p.

Pink Salmon - Adult / Northern British Columbia, Southern British Columbia, Washington, Oregon, Southeastern Alaska, Eastern Pacific Ocean / Open Ocean, Inshore / Horizontal Distribution (Geographic), Route / Stock Identification - Scale Analysis / Tagging, Capture

1161

Neave, F., T. Yonemori, and R.G. Bakkala. 1976.
Distribution and origin of chum salmon in offshore waters of the North Pacific Ocean. -- Int. North Pac. Fish. Comm. Bull. 35:79p.

Chum Salmon - Immature, Mature / Pacific Ocean (General) / Open Ocean / Horizontal Distribution (Geographic) - Salinity, Water Temperature, Food Availability / Route, Speed of Migration, Seasonal Timing / Tagging, Capture / Stock Identification - Scale Analysis

1162

Neave, N.M., C.L. Dilworth, J.G. Eales, and R.L. Saunders. 1966.
Adjustment of buoyancy in Atlantic salmon parr in relation to changing water velocity. -- J. Fish. Res. Board Can. 23(10):1617-1620.

Atlantic Salmon - Fingerling / Behaviour

1163

Needham, P.R., O.R. Smith, and H.A. Hanson. 1940.
Salmon salvage problems in relation to Shasta Dam, California, and notes on the biology of the Sacramento River salmon. -- Trans. Am. Fish. Soc. 70:55-69.

Chinook Salmon - Fry, Mature / California / River, Artificial Obstruction / Seasonal Timing, Diel Timing / Count

1164

Nelson, M.L. 1964.
Abundance, size and age of red salmon smolts from the Wood River system, 1963. -- Alaska Dep. Fish Game Inf. Leafl. 37:22p.

Sockeye Salmon - Smolt / Western Alaska / Lake, River / Seasonal Timing, Initiation of Downstream Migration, Termination of Migration - Water Temperature / Count

1165

Nelson, M.L. 1964.
Abundance, size, age and survival of red salmon smolts from the Ugashik Lakes system, Bristol Bay, 1964. -- Alaska Dep. Fish Game Inf. Leafl. 62:34p.

Sockeye Salmon - Smolt / Western Alaska / River, Lake / Seasonal Timing, Initiation of Downstream Migration - Water Temperature / Count

1166

Nelson, M.L. 1965.
Abundance, size and age of red salmon smolts from the Wood River system, 1964. -- Alaska Dep. Fish Game Inf. Leafl. 54:27p.

Sockeye Salmon - Smolt / Western Alaska / River, Lake / Diel Timing / Seasonal Timing, Termination of Migration, Initiation of Downstream Migration - Water Temperature / Count

1167

Nelson, M.L. 1966.
Abundance, size and age of red salmon smolts from the Wood River Lakes system, 1965. -- Alaska Dep. Fish Game Inf. Leafl. 76:32p.

Sockeye Salmon - Smolt / Western Alaska / Lake, River / Seasonal Timing, Diel Timing / Count

1168

Nelson, M.L. 1966.
Abundance, size, age and survival of red salmon smolts from the Ugashik Lakes system, Bristol Bay. -- Alaska Dep. Fish Game Inf. Leafl. 85:28p.

Sockeye Salmon - Smolt / Western Alaska / River, Lake / Seasonal Timing / Count

1169

Nelson, M.L., and H.W. Jaenicke. 1965.
Abundance, size and age of red salmon smolts from the Ugashik Lakes system, Bristol Bay, 1963. -- Alaska Dep. Fish Game Inf. Leafl. 49:20p.

Sockeye Salmon - Smolt / Western Alaska / River, Lake / Initiation of Downstream Migration, Seasonal Timing - Water Temperature / Diel Timing / Count

1170

Newman, H.W. 1956.
Study of the effects of magnetic fields on salmon. -- U.S. Army Corps Eng. North Pac. Div. Fish. Eng. Res. Program Prog. Rep. 1:58-63.

Pacific Salmon (General) - Fingerling / Orientation - Magnetic Field / Laboratory Study

1171

Newman, H.W. 1959.
Effect of field polarity in guiding salmon fingerlings by electricity. -- U.S. Fish Wildl. Serv. Spec. Sci. Rep. Fish. 319:15p.

Coho Salmon - Fingerling / Guiding

1172

Nicholas, J.B., E.O. Salo, B.P. Snyder, C.A. Simenstad, and W.J. Kinney. 1980.
Salmon outmigration studies in Hood Canal: a summary - 1977. Pp.171-201 in W.J. McNeil and D.C. Himsworth (ed.). Salmonid ecosystems of the North Pacific. -- Oregon State University Press, Corvallis, Oregon.

Coho Salmon, Chum Salmon - Immature / Washington / Inshore / Seasonal Timing / Capture

1173

Nicholas, J.W., L. Van Dyke, and R.C. Buckman. 1982.
Straying by hatchery-reared coho salmon released in Yaquina Bay, Oregon. -- Oreg. Dep. Fish Wildl. Fish Div. Inf. Rep. 82-6:22p.

Coho Salmon - Mature / Oregon / Inshore, River / Straying / Tagging

1174

Nickerson, R.B. 1979.
Separation of some pink salmon (*Oncorhynchus gorbuscha* Walbaum) sub-populations in Prince *William Sound, Alaska* by length-weight relationships and horizontal starch gel electrophoresis. -- Alaska Dep. Fish Game Inf. Leafl. 181:36p.

Pink Salmon / Central Alaska / Stock Identification - Morphometrics and Meristics, Electrophoresis and Serology

1175

Nicol, J.A.C. 1940.
River ascent of salmon after experimental freshets. (Atlantic salmon and trout investigations, 1940. Vol.20). -- Fish. Res. Board Can. Manuscr. Rep. Biol. Stn. 210(9):6p.

Atlantic Salmon - Mature / Atlantic Canada and United States / River, Estuary / Initiation of Stream Entry - Water Level and Flow Rate

1176

Nielsen, J. 1961.
Spawning and migration of the Greenland salmon (*Salmo salar* L.). Pp.15-23 in J. Nielsen. Contributions to *the biology* of the Salmonidae in Greenland. --Medd. Gron. 159(8):73p.

Atlantic Salmon - Adult, Mature, Kelt / Greenland / River, Inshore / Seasonal Timing / Route / Tagging

1177

Nikolaev, A.S. 1970.
Distribution of schools of salmon in the Komandorskie - Kamchatka region of the Pacific Ocean and the Sea of Okhotsk (from echo-sounding survey data) in the summer of 1968. -- Izv. Tikhookean. Nauchno-Issled. Inst. Rybn. Khoz. Okeanogr. 78:3-15 (Fish. Res. Board Can. Transl. Ser. 2487).

Pacific Salmon (General) - Adult / Western Pacific Ocean, Sea of Okhotsk / Open Ocean / Vertical Movement, Vertical Distribution - Water Temperature, Time of Year, Food Availability, Light Intensity / Horizontal Distribution (Geographic) - Food Availability / Hydroacoustics

1178

Nikolaev, A.S. 1970.
Study of distribution of Pacific salmon in the sea by means of hydro-acoustic apparatus. -- Izv. Tikhookean. Nauchno-Issled. Inst. Rybn. Khoz. Okeanogr. 73:25-38 (Fish. Res. Board Can. Transl. Ser. 2492).

Pacific Salmon (General) / Eastern Kamchatka to Chuchuki Peninsula, Sea of Okhotsk / Inshore, Open Ocean / Vertical Distribution, Vertical Movement - Water Temperature / Horizontal Distribution (Geographic) / Hydroacoustics

1179

Nikolayev, A.S. 1977.
Salmon movements in Kamchatka Bay. -- J. Ichthyol. 17(1):133-142.

Sockeye Salmon, Chum Salmon, Pink Salmon - Adult / Eastern Kamchatka to Chuchuki Peninsula / Inshore / Direction, Pattern, Route - Current, Tide / Speed of Migration - Tide / Direction Finding (General) - Odours, Current, Sound / Taxis - Current

1180

Nishikawa, K., T. Hirashima, S. Suzuki, and M. Suzuki. 1979.
Changes in circulating L thyroxine and L triiodothyroxine of the masu salmon, Oncorhynchus masou, accompanying smoltification, measured by radioimmunoassay. -- Endocrinol. Jap. 26(6):731-735.

Masu Salmon - Smolt / Smoltification - Physiological and Biochemical Aspects (Thyroid system)

1181

Nishino, K. 1958.
Chum salmon tagging experiments in spawning streams of Hokkaido. -- Sci. Rep. Hokkaido Salmon Hatchery 12:51-61.

In Japanese; English abstract.

Chum Salmon - Mature / Japan / River / Speed of Migration / Tagging

1182

Nishino, K. 1966.
A hematological study of chum salmon (Oncorhynchus keta) during up-stream migration for spawning. I. -- Sci. Rep. Hokkaido Salmon Hatchery 20:21-25.

In Japanese; English abstract.

Chum Salmon - Mature / Japan / River / Circulatory system - Physiological and Biochemical Aspects (Stage of Migration) / Freshwater Adaptation / Laboratory Study

1183

Nishino, K. 1967.
A hematological study of chum salmon (*Oncorhynchus keta*) during up-stream migration for spawning. II. -- Sci. Rep. Hokkaido Salmon Hatchery 21:35-39.

In Japanese; English abstract.

Chum Salmon - Mature / Japan / River / Circulatory system - Physiological and Biochemical Aspects (Stage of Migration) / Freshwater Adaptation / Laboratory Study

1184

Nishino, K., and K. Saito. 1969.
A hematological study of chum salmon (*Oncorhynchus keta*) during upstream migration for spawning. III. Biochemical study of the chum salmon blood. -- Sci. Rep Hokkaido Salmon Hatchery 23:9-14.

In Japanese; English abstract.

Chum Salmon - Mature / Japan / River / Circulatory system - Physiological and Biochemical Aspects (Stage of Migration) / Freshwater Adaptation / Laboratory Study

1185

Nishino, K., K. Saito, and T. Kitahara. 1969.
Biochemical studies of carotenoid in chum salmon (*Oncorhynchus keta*) during upstream migration for spawning. I. -- Sci. Rep. Hokkaido Salmon Hatchery 23:15-22.

In Japanese; English abstract.

Chum Salmon - Mature / Japan / River / Organ Systems (General) - Physiological and Biochemical Aspects / Freshwater Adaptation / Laboratory Study

1186

Nishino, K., Y. Yaneta, and S. Harada. 1959.
Chum salmon tagging experiments in spawning streams of Hokkaido: (II.) Experiments in Nishibetsu River (1.). -- Sci. Rep. Hokkaido Salmon Hatchery 14:123-133.

In Japanese; English abstract.

Chum Salmon - Mature / Japan / River / Speed of Migration - Time of Year / Tagging

1187

Nishioka, R.S., H.A. Bern, K.V. Lai, Y. Nagahama, and E.G. Grau. 1982.
Changes in the endocrine organs of coho salmon during normal and abnormal smoltification: an electron-microscope study. -- Aquaculture 28(1/2):21-38.

Coho Salmon - Smolt / Smoltification, Pituitary system, Thyroid system, Interrenal system, Ultimobranchial system, Endocrine System (General) - Morphological Aspects, Physiological and Biochemical Aspects

1188

Nishiyama, T. 1974.
Energy requirement of Bristol Bay sockeye salmon in the central Bering Sea and Bristol Bay. Pp.291-305 in D.W. Hood and E.J. Kelley (ed.). Oceanography of the Bering Sea with emphasis on renewable resources. -- Univ. Alaska Inst. Mar. Sci. Occas. Publ. 2.

Sockeye Salmon - Mature / Bering Sea, Western Alaska / Open Ocean, Inshore / Energetics

1189

Nishiyama, T., T. Fujii, S. Yamamoto, K. Masuda, and G. Kabayashi. 1968.
Chum salmon population in the Gulf of Anadyr and the adjacent high seas in late July 1966. -- Bull. Fac. Fish. Hokkaido Univ. 18(4):291-305.

Chum Salmon - Immature, Mature / Bering Sea / Open Ocean / Horizontal Distribution (Geographic) - Age / Capture

1190

Nomura, T. 1962.
Hormones in fish. I. Relation to migration. II. Relation to migration. -- J. Jap. Chem. 16(5,6):345-352,406-414 (Fish. Res. Board Can. Transl. Ser. 678).

Salmon (General) / Migration (General) - Thyroid system, Pituitary system, Gonadal system, Endocrine System (General)

1191

Nordeng, H. 1971.
Is the local orientation of anadromous fishes determined by pheromones? -- Nature 233:411-413.

Salmon (General) - Mature / River / Direction Finding (General) - Pheromones

1192

Nordeng, H. 1977.
A pheromone hypothesis for homeward migration in anadromous salmonids. -- Oikos 28:155-159.

Salmon (General) - Mature / Inshore, River / Direction Finding (General) - Pheromones

1193

Nordquist, O. 1906.
Laxens uppstigande i Finlands och norra Sveriges elfvar: statisitiskt bidrag till laxens biologi. -- Fennia Bull. Soc. Geogr. Finl. 22:58p.

In Finnish; Not seen.

Atlantic Salmon - Mature / Iceland and Northern Europe / River

1194

Nordquist, O. 1924.
Times of entering of the Atlantic salmon (*Salmo salar* L.) in the rivers. -- Rapp. P.-V. Reun. Cons. Int. Explor. Mer 33:1-58.

Atlantic Salmon - Mature / Iceland and Northern Europe / River / Seasonal Timing

1195

Norris, D.O. 1966.
Radiothyroidectomy in the salmonid fishes *Salmo gairdneri* Richardson and *Oncorhynchus tshawytscha* Walbaum. -- Ph.D. thesis. -- University of Washington, Seattle, Washington. -- 133p.

Steelhead Trout, Chinook Salmon - Smolt / Smoltification, Initiation of Downstream Migration - Thyroid system

1196

Northcote, T.G. 1958.
Effect of photoperiodism on response of juvenile trout to water currents. -- Nature 181:1283-1284.

Steelhead Trout - Juvenile / Taxis - Current (Photoperiod) / Laboratory Study

1197

Northcote, T.G. 1962.
Migratory behaviour of juvenile rainbow trout, Salmo gairdneri, in outlet and inlet streams of Loon Lake, British Columbia. -- J. Fish. Res. Board Can. 19(2):201-270.

Steelhead Trout - Juvenile / Southern British Columbia / Tributary / Direction, Pattern - Water Temperature / Taxis - Current (Water Temperature) / Initiation of Downstream Migration - Water Temperature, Photoperiod / Voluntary Displacement, Behaviour, Seasonal Timing, Diel Timing / Count

1198

Northcote, T.G. 1969.
Patterns and mechanisms in the lakeward migratory behaviour of juvenile trout. Pp.183-203 in T.G. Northcote (ed.). Symposium on salmon and trout in streams. H.R. MacMillan Lectures in Fisheries, 1968. -- Institute of Fisheries, University of British Columbia, Vancouver, British Columbia.

Steelhead Trout - Juvenile / Southern British Columbia / Tributary / Seasonal Timing, Diel Timing / Direction - Water Temperature, Photoperiod, Genetic Aspects

1199

Northcote, T.G., H.W. Lorz, and J.C. MacLeod. 1964.
Studies on diel vertical movements of fishes in a British Columbia lake. -- Verh. Int. Ver. Theor. Angew. Limnol. 15:940-946.

Sockeye Salmon - Landlocked / Southern British Columbia / Lake / Vertical Movement - Time of Year / Hydroacoustics, Capture

1200

Nyman, O.L., and J.H.C. Pippy. 1972.
Differences in Atlantic salmon, Salmo salar, from North America and Europe. -- J. Fish. Res. Board Can. 29(2):179-185.

Atlantic Salmon / Stock Identification - Electrophoresis and Serology

1201

Oakley, A.L., and T.E. Kruse. 1963.
Occurrence of a sockeye salmon stray in an Oregon coastal river. -- Res. Briefs Fish Comm. Oreg. 9(1):68.

Sockeye Salmon - Mature / Oregon / River / Straying

1202

Ochiai, A., and T. Yoshimitsu. 1964.
On the population and migration of adult red salmon in the western parts of the North Pacific and Bering Sea, as estimated by age composition. -- Bull. Jap. Soc. Sci. Fish. 30(9):734-741.

In Japanese; English abstract.

Sockeye Salmon - Adult / Western Pacific Ocean, Bering Sea / Open Ocean / Seasonal Timing, Route / Capture

1203

Ogi, H. 1973.
Ecological studies on the juvenile sockeye salmon, *Oncorhynchus nerka* (Wallbaum), in Bristol Bay, with special reference to its distribution and population. -- Bull. Fac. Fish. Hokkaido Univ. 24(1):14-41.

In Japanese; English abstract.

Sockeye Salmon - Immature / Western Alaska / Inshore, Open Ocean / Horizontal Distribution (Geographic) - Water Temperature, Salinity, Size and Growth / Seasonal Timing - Size and Growth / Capture

1204

Oguss, E. 1982.
Chinook populations and sport fishing parameters of Kitimat Arm. -- Can. Tech. Rep. Fish. Aquat. Sci. 1117:79p.

Chinook Salmon - Adult / Northern British Columbia / Inshore / Route, Seasonal Timing / Tagging, Capture

1205

Okazaki, T. 1978.
Genetic differences of two chum salmon (*Oncorhynchus keta*) populations returning to the Tokachi River. -- Bull. Far Seas Fish. Res. Lab. 16:121-128.

Chum Salmon - Mature / Japan / River / Seasonal Timing - Genetic Aspects

1206

Okazaki, T. 1979.
Genetic differences and possible origins of maturing and immature chum salmon (*Oncrhynchus keta*) in autumn

collections near the southern Kuril Islands. -- Bull. Far Seas Fish. Res. Lab. 17:141-157.

Chum Salmon - Immature, Mature / Japan, Sea of Okhotsk / Inshore, Open Ocean / Route / Stock Identification - Electrophoresis and Serology

1207

Olivereau, M. 1960.
Etude volumétrique de l'interrénal antérieur au cours de la smoltification de Salmo salar L. -- Acta Endocrinol. 33(1):142-156.

Not seen.

Atlantic Salmon - Smolt / Endocrine System (General), Osmoregulatory and Excretory System, Smoltification - Physiological and Biochemical Aspects

1208

Olivereau, M. 1962.
Modifications de l'interrénal du smolt (Salmo salar L.) au cours du passage d'eau douce en eau de mer. -- Gen. Comp. Endocrinol. 2(6):565-573.

In French.

Atlantic Salmon - Smolt / Seawater Adaptation / Interrenal system - Morphological Aspects

1209

Orton, J.H. 1943.
Biology of young salmon (S. salar L.). -- Nature 150:21-22.

Atlantic Salmon - Smolt / Southern Europe / River / Migration (General)

1210

Osako, M., and M. Kato. 1978.
Distribution of immature sockeye salmon, Oncorhynchus nerka (Walbaum), in the northwestern North Pacific Ocean and Bering Sea. -- Bull. Far Seas Fish. Res. Lab. 16:59-74.

In Japanese; English abstract.

Sockeye Salmon - Immature / Eastern Kamchatka to Chuchuki Peninsula, Western Pacific Ocean, Bering Sea / Inshore, Open Ocean / Horizontal Distribution (Geographic) - Age / Capture

1211

Osborne, M.F.M. 1959.
The hydromechanical performance of migrating salmon. -- Ph.D. thesis. -- University of Maryland, College Park, Maryland. -- 85p.

Pacific Salmon (General) - Mature / River / Locomotory System - Physiological and Biochemical Aspects / Behaviour, Energetics / Speed of Migration - Obstruction, Reservoirs and Impoundments

1212

Oshima, K., A. Gorbman, and H. Shimada. 1969.
Memory-blocking agents: effects on olfactory discrimination in homing salmon. -- Science 165:86-88.

Chinook Salmon - Mature / Memory / Olfactory system - Physiological and Biochemical Aspects / Laboratory Study

1213

Oshima, K., W.E. Hahn, and A. Gorbman. 1969.
Electroencephalographic olfactory responses in adult salmon to waters traversed in the homing migration. -- J. Fish. Res. Board Can. 26(8):2123-2133.

Coho Salmon, Chinook Salmon - Mature / River / Direction Finding (General) - Odours / Olfactory system - Physiological and Biochemical Aspects / Laboratory Study

1214

Oshima, K., W.E. Hahn, and A. Gorbman. 1969.
Olfactory discrimination of natural waters by salmon. -- J. Fish. Res. Board Can. 26(8):2111-2121.

Coho Salmon, Chinook Salmon - Mature / River / Olfactory system - Physiological and Biochemical Aspects / Laboratory Study

1215

Osterdahl, L. 1969.
The smolt run of a small Swedish River. Pp.205-215 in T.G. Northcote (ed.). Symposium on salmon and trout in streams. H.R. MacMillan Lectures in Fisheries, 1968. -- Institute of Fisheries, University of British Columbia, Vancouver, British Columbia.

Atlantic Salmon - Smolt / Iceland and Northern Europe / River / Seasonal Timing, Initiation of Downstream Migration - Water Temperature / Diel Timing - Time of Year

1216

Ota, T. 1976.
Lipids of masu salmon: IV. Changes of lipid composition and fatty acid composition in flesh lipids of juvenile masu salmon in the early stage of sea water life. -- Bull. Fac. Fish. Hokkaido Univ. 27(1):30-36 (Fish. Mar. Serv. (Can.) Transl. Ser. 3912).

Masu Salmon - Immature / Japan / Inshore / Seawater Adaptation - Physiological and Biochemical Aspects / Laboratory Study

1217

Ota, T., and M. Yamada. 1971.
Lipids of masu salmon *Oncorhynchus masou*: I. Variations of the lipid content and fatty acid composition of juvenile masu salmon during the period of smolt-transformation, and on the influence of light upon these variations. -- Bull. Fac. Fish. Hokkaido Univ. 22(2):151-158 (Fish. Res. Board Can. Transl. Ser. 2250).

Masu Salmon - Smolt / Smoltification - Physiological and Biochemical Aspects (Light Intensity) / Laboratory Study

1218

Ota, T., and M. Yamada. 1974.
Lipids of masu salmon: II. Seasonal variations in the lipids of masu salmon parr during the life in fresh-water. -- Bull. Jap. Soc. Sci. Fish. 40(7):699-706.

In Japanese; English abstract.

Masu Salmon - Juvenile / Digestive system - Physiological and Biochemical Aspects (Time of Year) / Smoltification / Laboratory Study

1219

Ota, T., and M. Yamada. 1974.
Lipids of masu salmon: III. Differences in the lipids of residual type and seaward migration type of masu salmon parr during the period of seaward migration. -- Bull. Jap. Soc. Sci. Fish. 40(7):707-713 (Fish. Mar. Serv. (Can.) Transl. Ser. 3372).

Masu Salmon - Fingerling / Digestive system - Physiological and Biochemical Aspects (Time of Year) / Smoltification, Migration (General)

1220

Ottaway, E.M., and A. Clarke. 1981.
A preliminary investigation into the vulnerability of young trout (Salmo trutta L.) and Atlantic salmon (S. salar L.) to downstream displacement by high water velocities. -- J. Fish Biol. 19(2):135-145.

Atlantic Salmon - Fry / Diel Timing, Voluntary Displacement

1221

Otto, R.G. 1971.
Effects of salinity on the survival and growth of pre-smolt coho salmon (Oncorhynchus kisutch). -- J. Fish. Res. Board Can. 28(3):343-349.

Coho Salmon - Fingerling / Southern British Columbia / Seawater Adaptation

1222

Otto, R.G., and J.E. McInerney. 1970.
Development of salinity preference in pre-smolt coho salmon, Oncorhynchus kisutch. -- J. Fish. Res. Board Can. 27(4):793-800.

Coho Salmon - Fingerling, Smolt / Preference - Salinity / Seawater Adaptation, Smoltification / Laboratory Study

1223

Ovchinnikov, V.V. 1981.
Sun-compass response and possibility of sun orientation of fishes. -- J. Ichthyol. 21(6):141-150.

Pacific Salmon (General) / Orientation - Celestial Cues

1224

Park, D.L. 1969.
Seasonal changes in downstream migration of age-group 0 chinook salmon in the upper Columbia River. -- Trans. Am. Fish. Soc. 98(2):315-317.

Chinook Salmon - Juvenile / Washington / Reservoir or Impoundment, River / Seasonal Timing, Direction Finding (General) - Reservoirs and Impoundments / Count

1225

Parker, R.R. 1967.
Contributions of the 1964 brood year of Bella Coola

pink salmon to fisheries and escapements of the central British Columbia area. -- Fish. Res. Board Can. Manuscr. Rep. Ser. 935:19p.

Pink Salmon - Mature / Northern British Columbia / River / Homing, Straying / Marking

1226

Parker, R.R. 1967.
Ocean distribution of Canadian stocks of salmon as shown by tagging. -- Fish. Res. Board Can. Manuscr. Rep. Ser. 946:13p.

Sockeye Salmon, Chum Salmon, Pink Salmon, Coho Salmon, Chinook Salmon - Adult / Pacific Ocean (General), Northern British Columbia, Southern British Columbia / Route / Tagging

1227

Parr, W.H., and P.C. Pedersen. 1969.
Studies of adult sockeye salmon at Chignik in 1968. -- Univ. Wash. Fish. Res. Inst. Circ. 69-16:40p.

Sockeye Salmon - Mature / Western Alaska / Estuary / Seasonal Timing

1228

Parry, G. 1960.
The development of salinity tolerance in the salmon, Salmo salar (L.) and some related species. -- J. Exp. Biol. 37:425-434.

Atlantic Salmon - Alevin, Fingerling, Smolt / Seawater Adaptation, Osmoregulatory and Excretory System - Physiological and Biochemical Aspects / Laboratory Study

1229

Parry, G. 1961.
Osmotic and ionic changes in blood and muscle of migrating salmonids. -- J. Exp. Biol. 38:411-427.

Atlantic Salmon - Smolt, Mature, Kelt / Seawater Adaptation, Freshwater Adaptation, Osmoregulatory and Excretory System - Physiological and Biochemical Aspects / Laboratory Study

1230

Parson, G. 1952.
How far and fast can salmon travel? -- Salmon Trout

Mag. 135:146-153.

Atlantic Salmon - Adult / Iceland and Northern Europe, Southern Europe / Inshore / Route, Speed of Migration / Tagging

1231

Parsons, J.W. 1973.
History of salmon in the Great Lakes, 1850-1970. -- U.S. Fish Wildl. Serv. Tech. Pap. 68:80p.

Atlantic Salmon - Mature / River, Lake / Great Lakes, Atlantic Canada and United States / Horizontal Distribution (Geographic), Seasonal Timing, Route

1232

Patten, B.C. 1964.
The rational decision process in salmon migration. -- J. Cons. Cons. Int. Explor. Mer 28:410-417.

Salmon (General) - Mature / Direction Finding (General), Random Movement / Modelling

1233

Patton, S., and E.G. Trams. 1973.
Salmon heart triglycerides during spawning migration. -- Comp. Biochem. Physiol. 46B:851-855.

Pink Salmon - Mature / River / Circulatory system , Digestive system - Physiological and Biochemical Aspects (Stage of Migration) / Energetics, Freshwater Adaptation / Laboratory Study

1234

Paulik, G.J., and A.C. DeLacy. 1958.
Changes in the swimming ability of Columbia River sockeye salmon during upstream migration. -- Univ. Wash. Coll. Fish. Tech. Rep. 46:67p.

Sockeye Salmon - Mature / Washington / River / Locomotory System, Behaviour - Stage of Migration / Energetics

1235

Paulik, G.J., A.C. DeLacy, and E.F. Stacy. 1957.
The effect of rest on the swimming performance of fatigued adult silver salmon. -- Univ. Wash. Sch. Fish. Tech. Rep. 31:24p.

Coho Salmon - Mature / Locomotory System, Energetics / Laboratory Study

1236

Paulus, R., and K. Parker. 1974.
Kvichak River sockeye salmon smolt studies, 1955-1972. -- Alaska Dep. Fish Game Inf. Leafl. 166:45p.

Sockeye Salmon - Smolt / Western Alaska / River, Lake / Seasonal Timing / Count

1237

Pautzke, C.F., and R.C. Meigs. 1940.
Studies on the life history of the Puget Sound steelhead trout (*Salmo gairdneri*). -- Trans. Am. Fish. Soc. 70:209-220.

Steelhead Trout - Juvenile, Mature / Washington / River / Seasonal Timing, Homing, Straying / Tagging, Marking

1238

Payne, R.H. 1974.
Transferrin variation in North American populations of the Atlantic salmon, *Salmo salar*. -- J. Fish. Res. Board Can. 31(6):1037-1041.

Atlantic Salmon / Migration (General)

1239

Pearcy, G.W., and K. Masuda. 1982.
Tagged steelhead trout (*Salmo gairdneri* Richardson) collected in the North Pacific by the Oshoro-Maru, 1980-1981. -- Bull. Fac. Fish. Hokkaido Univ. 33(4):249-254.

Steelhead Trout - Immature / Eastern Pacific Ocean, Washington, Southern British Columbia / Route, Speed of Migration / Tagging

1240

Pearson, R.E. 1964.
Use of a discriminant function to classify North American and Asian pink salmon, *Oncorhynchus gorbuscha* (Walbaum), collected in 1959. -- Int. North Pac. Fish. Comm. Bull. 14:67-90.

Pink Salmon - Adult / Pacific Ocean (General) / Open Ocean / Route / Stock Identification - Scale Analysis

1241

Peck, J.W. 1970.
Straying and reproduction of coho salmon, Oncorhynchus kisutch, planted in a Lake Superior tributary. -- Trans. Am. Fish. Soc. 99(3):591-595.

Coho Salmon - Mature / Great Lakes / Straying

1242

Peck, J.W. 1974.
Migration, food habits and predation on yearling coho salmon in a Lake Michigan tributary and bay. -- Trans. Am. Fish. Soc. 103(1):10-14.

Coho Salmon - Juvenile / Great Lakes / Tributary, Lake / Seasonal Timing, Speed of Migration, Diel Timing / Capture

1243

Pedersen, P.C., K.R. Manthey, L.M. Malloy, and D.E. Bevan. 1979.
Timing, escapement distribution, and catch of Kodiak Island salmon, 1975. -- Univ. Wash. Fish. Res. Inst. Circ. 79-4:78p.

Sockeye Salmon, Pink Salmon - Mature / Central Alaska / River / Seasonal Timing

1244

Pedersen, P.C., K.R. Manthey, L.M. Malloy, and D.E. Bevan. 1979.
Timing, escapement distribution. and catch of Kodiak Island salmon, 1977. -- Univ. Wash. Fish. Res. Inst. Circ. 79-5:85p.

Sockeye Salmon, Pink Salmon - Mature / Central Alaska / River / Seasonal Timing

1245

Peet, R.G., and J.D. Pratt. 1972.
Distant and local exploitation of a Labrador Atlantic salmon population by commercial fisheries. -- Int. Comm. Northwest Atl. Fish. Redbook 1972(3):65-71.

Atlantic Salmon - Immature, Mature, Kelt / Greenland, Atlantic Canada and United States / Route, Seasonal Timing - Age / Tagging

1246

Pennoyer, S. 1966.
1965 Kvichak River red salmon (*Oncorhynchus nerka*) smolt studies. -- Alaska Dep. Fish Game Inf. Leafl. 83:24p.

Sockeye Salmon - Smolt / Western Alaska / River, Lake / Seasonal Timing / Count

1247

Pennoyer, S., and M.C. Seibel. 1965.
1964 Kvichak River red salmon (*Oncorhynchus nerka*) smolt studies. -- Alaska Dep. Fish Game Inf. Leafl. 58:43p.

Sockeye Salmon - Smolt / Western Alaska / River, Lake / Seasonal Timing, Initiation of Downstream Migration - Water Temperature / Count

1248

Pentegoff, B.P., U.N. Mentoff, and E.F. Kurnaeff. 1928.
Physico-chemical characteristics of breeding migration fast of keta salmon. -- Izv. Tikhookean. Nauchno-Promyslovio Stn. Bull. Pac. Sci. Fish. Res. Stn. 2(1):64p.

In Russian; English abstract.

Chum Salmon - Mature / Sea of Okhotsk / River / Direction Finding (General), Digestive system - Physiological and Biochemical Aspects (Stage of Migration) / Energetics / Speed of Migration - Current

1249

Pentelow, F.T.K., B.A. Southgate, and R. Bassindale. 1933.
The relation between the size, age, and time of migration of salmon and sea trout smolts in the River Tess. -- Fish. Invest. Minist. Agric. Fish. (G.B.) Ser. 1 3(4):1-10.

Atlantic Salmon - Smolt / Southern Europe / River / Seasonal Timing, Initiation of Downstream Migration, Smoltification - Size and Growth, Age

1250

Pepper, V.A. 1976.
Lacustrine nursery areas for Atlantic salmon in insular Newfoundland. -- Fish. Mar. Serv. (Can.) Tech. Rep. 671:61p.

Atlantic Salmon - Fingerling / Atlantic Canada and United States / Lake / Non Migratory Movements

1251

Perova, S.Ya. 1968.
Characteristics of the downstream migration of juvenile salmonids from the Poronai River basin. -- Izv. Tikhookean. Nauchno-Issled. Inst. Rybn. Khoz. Okeanogr. 65:281-282 (Fish. Res. Board Can. Transl. Ser. 1456).

Chum Salmon, Pink Salmon - Fry / Sea of Okhotsk / River / Diel Timing, Initiation of Downstream Migration - Tide / Pattern - Current / Schooling, Voluntary Displacement, Seasonal Timing

1252

Pete, K. 1977.
Species - specific odor as a guiding mechanism for local orientation in homing chinook (Oncorhynchus tshawytscha) and coho (O. kisutch) salmon. -- M.Sc. thesis. -- University of Washington, Seattle, Washington.

Coho Salmon, Chinook Salmon - Mature / River / Direction Finding (General) - Pheromones

1253

Peters, M. 1971.
Sensory mechanisms of homing in salmonids: a comment. -- Behaviour 39:18-19.

Atlantic Salmon - Mature / Direction Finding (General) - Odours / Homing / Occlusion

1254

Peterson, N.P. 1982.
Immigration of juvenile coho salmon (Oncorhynchus kisutch) into riverine ponds. -- Can. J. Fish. Aquat. Sci. 39(9):1308-1310.

Coho Salmon - Juvenile / Washington / River, Lake / Non Migratory Movements - Water Level and Flow Rate / Pattern, Seasonal Timing / Marking

1255

Peterson, R.H., and J.L. Metcalfe. 1979.
Responses of Atlantic salmon alevins to temperature gradients. -- Can. J. Zool. 57:1424-1430.

Atlantic Salmon - Alevin / Preference - Water Temperature

1256

Phillips, J.G., and A. Wright. 1966.
Adrenocorticosteroids and fish migration. Pp.3-4 *in* N. Kawamoto (convener). Physiological basis of fish migration in the Pacific area. -- Proc. Pac. Sci. Congr. 11(7).

Salmon (General) / Migration (General) - Interrenal system

1257

Piggins, D.J. 1962.
Thyroid feeding of salmon parr. -- Nature 195:1017-1018.

Atlantic Salmon - Smolt / Smoltification - Thyroid system / Laboratory Study

1258

Pinder, L.J., and J.G. Eales. 1969.
Seasonal buoyancy changes in Atlantic salmon (*Salmo salar*) parr and smolt. -- J. Fish. Res. Board Can. 26(8):2093-2100.

Atlantic Salmon - Fingerling, Smolt / Smoltification - Physiological and Biochemical Aspects (Size and Growth, Water Temperature, Photoperiod) / Laboratory Study

1259

Pinhorn, A.T., and C.W. Andrews. 1963.
Effect of photoperiods on the reactions of juvenile Atlantic salmon (*Salmo salar* L.) to light stimuli. -- J. Fish. Res. Board Can. 20(5):1245-1266.

Atlantic Salmon - Juvenile / Behaviour, Taxis - Light Intensity (Photoperiod) / Laboratory Study

1260

Pinhorn, A.T., and C.W. Andrews. 1965.
Effect of photoperiods on the behavior of juvenile Atlantic salmon (*Salmo salar* L.) in vertical and horizontal light gradients. -- J. Fish. Res. Board Can. 22(2):369-383.

Atlantic Salmon - Fingerling / Atlantic Canada and United States / Taxis - Light Intensity (Photoperiod) / Behaviour / Laboratory Study

1261

Pippy, J. 1982.
Report of the working group on the interception of mainland salmon in Newfoundland. -- Can. Manuscr. Rep. Fish. Aqaut. Sci. 1654:196p.

Atlantic Salmon - Mature / Atlantic Canada and United States / Inshore / Route, Speed of Migration / Tagging

1262

Pippy, J.H.C. 1969.
Preliminary report on parasites as biological tags in Atlantic salmon (*Salmo salar*). -- Fish. Res. Board Can. Tech. Rep. 134:44p.

Atlantic Salmon / Atlantic Ocean (General) / Stock Identification - Parasite Tags

1263

Pippy, J.H.C. 1969.
Pomphorhynchus laevis (Zoega) Muller, 1776 (Acanthocephala) in Atlantic salmon (*Salmo salar*) and its use as a biological tag. -- J. Fish. Res. Board Can. 26(4):909-919.

Atlantic Salmon / Southern Europe / Stock Identification - Parasite Tags

1264

Pippy, J.H.C. 1975.
Larval *Anisakis simplex* in Atlantic salmon (*Salmo salar*) and their value as biological indicators. -- Ph.D. thesis. -- University of Guelph, Guelph, Ontario.

Atlantic Salmon / Atlantic Ocean (General) / Stock Identification - Parasite Tags

1265

Platoshina, L.K. 1972.
A description of the condition of the hypophyses of fall chum salmon in the Amur River in different sectors of the spawning migration. -- Izv. Tikhookean. Nauchno-Issled. Inst. Rybn. Khoz. Okeanogr. 77:233-235 (Fish. Res. Board Can. Transl. Ser. 2934).

Chum Salmon - Mature / Sea of Okhotsk / River / Pituitary system - Morphological Aspects (Stage of Migration) / Laboratory Study

1266

Poddubnyi, A.G. 1971.
Movement of salmon to spawning grounds. In A.G. Poddubnyi. Ecologicheskaia topografiia populiatsii ryb v vodokhranilishchankh. -- Izdatel'stvo Nauka Leningradskoe Otdelenye, Leningrad, USSR. (Fish. Res. Board Can. Transl. Ser. 2066).

Atlantic Salmon - Mature / Western Arctic Russia / River, Artificial Obstruction, Reservoir or Impoundment / Pattern - Sound, Time of Day / Speed of Migration - Current

1267

Poddubnyi, A.G. 1971.
Orientation of fishes. In A.G. Poddubnyi. Ecologicheskaia topografiia populiatsii ryb v vodokhranilishchankh. -- Izdatel'stvo Nauka Leningradskoe Otdelenye, Leningrad, USSR. (Fish. Res. Board Can. Transl. Ser. 2067).

Salmon (General) / Homing, Direction Finding (General) - Odours / Orientation - Celestial Cues, Electric Fields, Magnetic Field / Taxis - Current

1268

Poe, P.H., and O.A. Mathisen. 1981.
Distance from sea and elevation of important sockeye salmon spawning grounds. -- Univ. Wash. Fish. Res. Inst. Circ. 81-1:23p.

Sockeye Salmon - Mature / River / Route

1269

Polyakov, V.N., and A.A. Maximovich. 1980.
[Morphometric ultrastructure of interrenal tissue cells at the successive stages of spawning migration of the pink salmon]. -- Tsitologiya 22(8):907-913.

In Russian; Not seen.

Pink Salmon - Mature / Interrenal system - Morphological Aspects (Stage of Migration)

1270

Poston, H.A. 1978.
Neuroendocrine mediation of photoperiod and other environmental influences on physiological responses in salmonids: a review. -- U.S. Fish Wildl. Serv. Tech. Pap. 96:14p.

Salmon (General) - Fingerling, Smolt / Smoltification - Water Temperature, Photoperiod, Size and Growth, Salinity / Seawater Adaptation - Photoperiod / Initiation of Downstream Migration - Photoperiod, Size and Growth / Endocrine System (General), Pineal system, Pituitary system - Physiological and Biochemical Aspects

1271

Poulsen, E.M. 1926.
[Are the salmon and trout returning to the water-courses where they grew up?] -- Ferskvandsfiskeribladet 24:26-30.

In Danish; Not seen.

Atlantic Salmon / Homing

1272

Poulsen, E.M. 1927.
[Are the salmon and trout returning to the water-courses where they grew up?] -- Naturens Verden 11:1-8.

In Danish; Not seen.

Atlantic Salmon / Homing

1273

Powell, D.E., and A.E. Peterson. 1957.
Experimental fishing to determine distribution of salmon in the North Pacific Ocean, 1955. -- U.S. Fish Wildl. Serv. Spec. Sci. Rep. Fish. 205:30p.

Chinook Salmon, Chum Salmon, Pink Salmon, Sockeye Salmon, Coho Salmon - Adult / Central Pacific Ocean, Eastern Pacific Ocean / Open Ocean / Vertical Distribution, Seasonal Timing, Horizontal Distribution (Geographic) / Capture

1274

Power, G. 1981.
Stock characteristics and catches of Atlantic salmon (Salmo salar) in Quebec, and Newfoundland and Labrador in relation to environmental variables. -- Can. J. Fish. Aquat. Sci. 38(12):1601-1611.

Atlantic Salmon / Atlantic Canada and United States / Migration (General)

1275

Power, G., and D. Cressman. 1975.
Atlantic salmon (*Salmo salar*) taken in the sea in north Labrador. -- J. Fish. Res. Board Can. 32(2):307-309.

Atlantic Salmon - Adult / Atlantic Canada and United States / Inshore / Route / Stock Identification - Scale Analysis

1276

Power, J.H., and J.D. McCleave. 1980.
Riverine movements of hatchery-reared Atlantic salmon (*Salmo salar*) upon return as adults. -- Environ. Biol. Fish. 5(1):3-13.

Atlantic Salmon - Smolt, Mature / Atlantic Canada and United States / River / Route, Direction, Homing / Speed of Migration - Time of Year / Reverse Migration, Pattern - Obstruction / Direction Finding (General) - Odours, Pheromones / Imprinting and Learning

1277

Powers, E.B. 1939.
Chemical factors affecting the migratory movements of the Pacific salmon. Pp.72-85 *in* F.R. Moulton (ed.). The migration and conservation of salmon. -- Publ. Amer. Assoc. Adv. Sci. 8.

Pacific Salmon (General) - Mature / Inshore, Open Ocean, River / Route - Current / Direction Finding (General) - Salinity, Dissolved Gas Concentration / Homing

1278

Powers, E.B. 1940.
The spawning migration of the salmon. -- Science 92:353-354.

Salmon (General) / Direction Finding (General) - Dissolved Gas Concentration / Migration (General)

1279

Powers, E.B. 1941.
Physico-chemical behaviors of waters as factors in the "homing" of the salmon. -- Ecology 22(1):1-16.

Salmon (General) - Adult / Inshore, Open Ocean / Direction Finding (General) - Dissolved Gas Concentration

1280

Powers, E.B., and R.T. Clark. 1943.
Further evidence of chemical factors affecting the migratory movements of fishes, especially the salmon. -- Ecology 24(1):109-113.

Salmon (General) / Direction Finding (General) - Dissolved Gas Concentration

1281

Pravadin, I.F. 1940.
A review of investigations on the far-eastern salmons. -- Izv. Tikhookean. Nauchno-Issled. Rybn. Khoz. Okeanogr. 18:5-105 (Fish. Res. Board Can. Transl. Ser. 371).

Pacific Salmon (General) / Migration (General)

1282

Preble, E.A. 1908.
Fishes of the Athabaska-Mackenzie region. Pp.502-515 in E.A. Preble. A biological investigation of the Athabaska-Mackenzie region. -- North Amer. Fauna 27.

Pacific Salmon (General) / Arctic North America / Horizontal Distribution (Geographic)

1283

Prince, E.E. 1920.
Why do salmon ascend from the sea? -- Trans. Am. Fish. Soc. 49(3):125-140.

Salmon (General) / Migration (General) - Evolution

1284

Pritchard, A.L. 1930.
Pacific salmon migration: the tagging of the pink salmon and the chum salmon in British Columbia in 1928. -- Bull. Biol. Board Can. 14:17p.

Chum Salmon, Pink Salmon - Mature / Southern British Columbia, Washington / Inshore / Route / Tagging

1285

Pritchard, A.L. 1932.
Pacific salmon migration: the tagging of the pink salmon and the chum salmon in British Columbia in 1929 and 1930. -- Bull. Biol. Board Can. 31:16p.

Chum Salmon, Pink Salmon - Mature / Southern British Columbia, Northern British Columbia, Washington / Inshore / Route, Speed of Migration / Tagging

1286

Pritchard, A.L. 1932.
Relation of tagging programs to the conservation of Pacific salmon off the coast of British Columbia. -- Trans. Am. Fish. Soc. 62:88-93.

Chinook Salmon, Coho Salmon, Pink Salmon, Sockeye Salmon - Mature / Southern British Columbia, Northern British Columbia / Inshore / Route / Tagging

1287

Pritchard, A.L. 1933.
Tagging programmes and their relation to the conservation of fish with special reference to Pacific salmon in British Columbia waters. -- Proc. Pac. Sci. Congr. 5(5):3733-3740.

Chum Salmon, Chinook Salmon, Coho Salmon, Pink Salmon, Sockeye Salmon - Adult / Southern British Columbia, Northern British Columbia / Inshore / Route / Tagging

1288

Pritchard, A.L. 1934.
Pacific salmon migration: the tagging of the coho salmon in British Columbia in 1929 and 1930. -- Bull. Biol. Board Can. 40:24p.

Coho Salmon - Adult / Southern British Columbia, Northern British Columbia, Southeastern Alaska, Washington / Route, Speed of Migration / Tagging

1289

Pritchard, A.L. 1934.
Pacific salmon migration: the tagging of the spring salmon in British Columbia in 1929 and 1930. -- Bull. Biol. Board Can. 41:31p.

Chinook Salmon - Mature / Southern British Columbia, Northern British Columbia, Southeastern Alaska, Washington, Oregon / Inshore / Route / Speed of Migration / Tagging

1290

Pritchard, A.L. 1936.
Factors influencing the upstream spawning migration of

the pink salmon, Oncorhynchus gorbuscha (Walbaum). -- J. Biol. Board Can. 2(4):383-389.

Pink Salmon - Mature / Northern British Columbia / Estuary, River / Pattern / Seasonal Timing, Initiation of Stream Entry - Water Level and Flow Rate / Count

1291

Pritchard, A.L. 1937.
Variation in the time of run, sex proportions, size and egg content of adult pink salmon (Oncorhynchus gorbuscha) at McClinton Creek, Masset Inlet, B.C. -- J. Biol. Board Can. 3(5):403-416.

Pink Salmon - Mature / Northern British Columbia / River, Estuary / Initiation of Stream Entry - Water Level and Flow Rate / Seasonal Timing - Size and Growth / Count

1292

Pritchard, A.L. 1939.
Homing tendency and age at maturity of pink salmon (Oncorhynchus gorbuscha) in British Columbia. -- J. Fish. Res. Board Can. 4(4):233-251.

Pink Salmon - Mature / Southern British Columbia, Northern British Columbia / Homing, Straying / Marking

1293

Pritchard, A.L. 1944.
Physical characteristics and behaviour of pink salmon fry at McClinton Creek, B.C. -- J. Fish. Res. Board Can. 6(3):217-227.

Pink Salmon - Fry / Northern British Columbia / River / Speed of Migration, Behaviour, Diel Timing, Seasonal Timing / Initiation of Downstream Migration - Water Level and Flow Rate, Light Intensity / Count

1294

Pritchard, A.L. 1946.
Sockeye salmon migration in Babine River and Lake as indicated by tagging at Babine Fence in 1946. -- Fish. Res. Board Can. Manuscr. Rep. Biol. Stn. 532:8p.

Sockeye Salmon - Mature / Northern British Columbia / Lake, River / Speed of Migration - Time of Year / Seasonal Timing / Count, Tagging

1295

Pritchard, A.L. 1947.
Sockeye salmon migration in Babine River and Lake as indicated by tagging at Babine Fence in 1947. -- Fish. Res. Board Can. Manuscr. Rep. Biol. Stn. 536:6p.

Sockeye Salmon - Mature / Northern British Columbia / River, Lake, Tributary / Speed of Migration - Time of Year / Seasonal Timing / Count, Tagging

1296

Pritchard, A.L., and A.C. DeLacy. 1944.
Migration of pink salmon (Oncorhynchus gorbuscha) in southern British Columbia and Washington in 1943. -- Bull. Fish. Res. Board Can. 66:23p.

Pink Salmon - Mature / Southern British Columbia, Washington / Inshore / Route, Seasonal Timing / Speed of Migration - Time of Year / Tagging

1297

Pritchard, A.L., and A.C. DeLacy. 1944.
Migration of pink salmon (Oncorhynchus gorbuscha). -- Wash. Dep. Fish. Biol. Rep. 44(A):23p.

Pink Salmon - Mature / Washington, Southern British Columbia / Inshore / Route / Speed of Migration - Time of Year

1298

Prvol'nev, T.I., N.V. Koroleva, and L.Ya. Shterman. 1960.
The relationship of the offspring of salmon (Salmo salar) to the salinity of the water. -- Dokl. Acad. Sci. USSR Biol. Sci. Sect. 130:172-173.

Atlantic Salmon - Juvenile / Seawater Adaptation, Osmoregulatory and Excretory System - Physiological and Biochemical Aspects (Size and Growth)

1299

Pulford, E.F. 1955.
Escapement of spring chinook salmon and steelhead over Willamette Falls in 1953. -- Res. Briefs Fish Comm. Oreg. 6(1):19-28.

Chinook Salmon, Steelhead Trout - Mature / Oregon / River, Artificial Obstruction / Diel Timing / Seasonal Timing - Age / Count

1300

Pulford, E.F. 1955.
Escapement of spring chinook salmon and steelhead over Willamette Falls in 1954. -- Res. Briefs Fish Comm. Oreg. 6(2):21-24.

Chinook Salmon, Steelhead Trout - Mature / Oregon / River, Artificial Obstruction / Seasonal Timing, Initiation of Upstream Migration / Count

1301

Purves, J.K. 1947.
Operation of smolt trap at the lower Rawdon River (Grand Lake). (Atlantic salmon and trout investigations, 1947. Vol.37). -- Fish. Res. Board Can. Manuscr. Rep. Biol. Stn. 393(5):11p.

Atlantic Salmon - Smolt / Atlantic Canada and United States / River / Seasonal Timing, Initiation of Downstream Migration - Water Level and Flow Rate / Count

1302

Purves, J.K. 1947.
Results of salmon tagging above Grand (Shubenacadie) Lake. (Atlantic salmon and trout investigations, 1947. Vol.37). -- Fish. Res. Board Can. Manuscr. Rep. Biol. Stn. 393(4):11p.

Atlantic Salmon - Landlocked, Kelt / Atlantic Canada and United States / River, Estuary / Route - Size and Growth

1303

Pyefinch, K.A. 1955.
Geographical variation in the Atlantic salmon. -- Nature 231:250-252.

Atlantic Salmon / Atlantic Ocean (General) / Stock Identification - Electrophoresis and Serology

1304

Pyefinch, K.A. 1962.
Capture of pink salmon on the Scottish coast. -- Ann. Biol. 17:238.

Pink Salmon - Adult / Southern Europe / Horizontal Distribution (Geographic)

1305

Pyefinch, K.A., and D.H. Mills. 1963.
Observations on the movements of Atlantic salmon (*Salmo salar* L.) in the River Conon and the River Meig, Ross-shire. I. -- Scotl. Dep. Agric. Fish. Freshwater Salmon Fish. Res. 31:24p.

Atlantic Salmon - Smolt / Southern Europe / River / Seasonal Timing, Initiation of Downstream Migration - Water Level and Flow Rate / Count

1306

Pyefinch, K.A., and W.M. Shearer. 1957.
The movements of salmon tagged in the sea: Altens, Kincardineshire, 1952. -- Scott. Home Dep. Freshwater Salmon Fish. Res. 19:17p.

Atlantic Salmon - Adult / Southern Europe / Inshore / Route / Tagging

1307

Pyefinch, K.A., and W.B. Woodward. 1955.
The movements of salmon tagged in the sea: Montrose, 1948, 1950, 1951. -- Scott. Home Dep. Freshwater Salmon Fish. Res. 8:15p.

Atlantic Salmon - Adult / Southern Europe / Inshore / Route / Tagging

1308

Quinn, T.P. 1980.
Evidence for celestial and magnetic compass orientation in lake migrating sockeye salmon (*Oncorhynchus nerka*) fry. -- J. Comp. Physiol. 137A(3):243-248.

Sockeye Salmon - Fry / Lake, Tributary / Orientation - Celestial Cues, Magnetic Field / Laboratory Study

1309

Quinn, T.P. 1982.
A model for salmon navigation on the high seas. Pp.229-237 *in* E.L. Brannon and E.O. Salo (ed.). Proceedings of the Salmon and Trout Migratory Behavior Symposium. -- School of Fisheries, University of Washington, Seattle, Washington.

Salmon (General) - Mature / Open Ocean / Orientation - Magnetic Field, Celestial Cues / Initiation of Homing Migration - Photoperiod / Modelling

1310

Quinn, T.P. 1982.
Intra-specific differences in sockeye salmon fry compass orientation mechanisms. Pp.79-85 *in* E.L. Brannon and E.O. Salo (ed.). Proceedings of the Salmon and Trout Migratory Behavior Symposium. -- School of Fisheries, University of Washington, Seattle, Washington.

Sockeye Salmon - Fry / Orientation - Magnetic Field, Celestial Cues, Genetic Aspects

1311

Quinn, T.P., and E.L. Brannon. 1982.
The use of celestial and magnetic cues by orienting sockeye salmon smolts. -- J. Comp. Physiol. 147(4):547-552.

Sockeye Salmon - Smolt / Northern British Columbia / Lake / Orientation - Magnetic Field, Celestial Cues / Laboratory Study

1312

Quinn, T.P., R.T. Merrill, and E.L. Brannon. 1981.
Magnetic field detection in sockeye salmon. -- J. Exp. Zool. 217:137-142.

Sockeye Salmon - Fry / Orientation - Magnetic Field / Laboratory Study

1313

Radford, P.J., J.C. Peters, and H.R. Farmer. 1972.
Digital simulation of the upstream movement of migratory salmonids. Pp.21-38 *in* A.K. Biwas (ed.). Modelling of water resources systems: selected papers from International Symposium on Modelling Techniques in Water Systems, Ottawa, 1972. -- Harvest House, Montreal, Quebec.

Not seen.

Salmon (General) - Mature / River / Modelling

1314

Raleigh, R.F. 1967.
Genetic control in the lakeward migrations of sockeye salmon (*Oncorhynchus nerka*) fry. -- J. Fish. Res. Board Can. 24(12):2613-2622.

Sockeye Salmon - Fry / Central Alaska / River, Tributary / Seasonal Timing, Direction - Genetic Aspects, Water Temperature / Laboratory Study

1315

Raleigh, R.F. 1969.
Genetic control in lakeward migrations of sockeye salmon (Oncorhynchus nerka) fry. -- Ph.D. thesis. -- University of Idaho, Moscow, Idaho. -- 77p.

Sockeye Salmon - Fry / Tributary / Direction - Genetic Aspects, Water Temperature

1316

Raleigh, R.F. 1971.
Innate control of migrations of salmon and trout fry from natal gravels to rearing areas. -- Ecology 52(2):291-297.

Sockeye Salmon - Fry / Tributary / Direction, Initiation of Downstream Migration - Water Temperature / Direction Finding (General) - Odours, Influences (Miscellaneous) / Direction - Genetic Aspects / Laboratory Study

1317

Ralph, E. 1967.
Quantitative analysis of the serum proteins and non-protein nitrogenous constituents of the blood of smolts (Salmo salar). -- Fish. Res. Board Can. Manuscr. Rep. Ser. 901:10p.

Atlantic Salmon - Smolt / Seawater Adaptation, Smoltification, Circulatory system , Osmoregulatory and Excretory System - Physiological and Biochemical Aspects / Laboratory Study

1318

Ramsay, D.A. 1961.
Olfactory cues in migrating salmon. -- Science 133:56-57.

Salmon (General) - Mature / Direction Finding (General) - Odours

1319

Raymond, H.L. 1968.
Migration rates of yearling chinook salmon in relation to flows and impoundments in the Columbia and Snake Rivers. -- Trans. Am. Fish. Soc. 97(4):356-359.

Chinook Salmon - Fingerling / Washington, Colorado, Idaho / River, Reservoir or Impoundment, Artificial

Obstruction / Speed of Migration - Reservoirs and Impoundments / Marking

1320

Raymond, H.L. 1969.
Effect of John Day Reservoir on the migration rate of juvenile chinook salmon in the Columbia River. -- Trans. Am. Fish. Soc. 98(3):513-514.

Chinook Salmon - Juvenile / Washington / Reservoir or Impoundment, River / Speed of Migration - Reservoirs and Impoundments / Marking

1321

Raymond, H.L. 1979.
Effects of dams and impoundments on migrations of juvenile chinook salmon and steelhead from the Snake River, 1966 to 1975. -- Trans. Am. Fish. Soc. 108(6):505-529.

Chinook Salmon, Steelhead Trout - Juvenile / Washington, Oregon, Colorado, Idaho / River, Reservoir or Impoundment, Artificial Obstruction / Seasonal Timing, Speed of Migration - Obstruction, Reservoirs and Impoundments / Seasonal Timing, Initiation of Downstream Migration - Water Temperature / Smoltification / Marking, Count

1322

Raymond, R. 1944.
Montée du saumon et de quelques autres poissons dans la rivière Petitcodiac, à Salisbury, 1944. (Atlantic salmon and trout investigations, 1944, Vol.31). -- Fish. Res. Board Can. Manuscr. Rep. Biol. Stn. 380(5):18p.

Atlantic Salmon - Mature / Atlantic Canada and United States / River / Seasonal Timing, Initiation of Upstream Migration - Water Temperature, Water Level and Flow Rate

1323

Rees, W.H. 1956.
Determination of the vertical and horizontal distribution of seaward migrants, Baker Dam. -- U.S. Army Corps Eng. North Pac. Div. Fish. Eng. Res. Program Prog. Rep. 1:154-161.

Coho Salmon, Sockeye Salmon - Fingerling / Washington / Reservoir or Impoundment / Vertical Distribution, Pattern / Capture, Hydroacoustics

1324

Rees, W.H. 1957.
The vertical and horizontal distribution of seaward migrant salmon in the forebay of Baker Dam. -- Wash. Dep. Fish. Fish. Res. Pap. 2(1):5-17.

Sockeye Salmon, Coho Salmon - Juvenile / Washington / Reservoir or Impoundment, Artificial Obstruction / Vertical Distribution / Pattern - Weather / Capture

1325

Refstie, T., T.A. Steine, and T. Gjedrem. 1977.
Selection experiments with salmon: II. Proportion of Atlantic salmon smoltifying at 1 year of age. -- Aquaculture 10(3):231-242.

Atlantic Salmon - Smolt / Smoltification - Age, Size and Growth (Genetic Aspects)

1326

Reimers, P.E. 1968.
Social behavior among juvenile fall chinook salmon. -- J. Fish. Res. Board Can. 25(9):2005-2008.

Chinook Salmon - Juvenile / Oregon / River, Tributary / Seasonal Timing, Behaviour

1327

Reingold, M. 1975.
Effects of displacing, hooking, and releasing on migrating adult steelhead trout. -- Trans. Am. Fish. Soc. 104(3):458-460.

Steelhead Trout - Mature / Colorado, Idaho / River / Homing / Displacement

1328

Reinhardt, R., and C.N. MacKinnon. 1979.
Quinsam River, 1975 downstream enumeration and wild coho smolt marking. -- Fish. Mar. Serv. (Can.) Tech. Rep. 840:27p.

Sockeye Salmon, Pink Salmon, Chum Salmon, Coho Salmon - Fry / Coho Salmon - Smolt / Southern British Columbia / River / Seasonal Timing / Count

1329

Rice, D.I. 1946.
Marked salmon caught in Grand Lake area by anglers (May - August 1946). (Atlantic salmon and trout investigations, Vol.34). -- Fish. Res. Board Can. Manuscr. Rep. Biol. Stn. 390(4):7p.

Atlantic Salmon - Adult, Landlocked / Atlantic Canada and United States / Lake, Tributary / Route / Marking

1330

Rich, W.H. 1920.
Early history and seaward migration of chinook salmon in the Columbia and Sacramento Rivers. -- Bull. Bur. Fish. (U.S.) 37:1-74.

Chinook Salmon - Juvenile / Washington, California / River / Seasonal Timing - Size and Growth

1331

Rich, W.H. 1926.
Salmon tagging experiments in Alaska, 1924 and 1925. -- Bull. Bur. Fish. (U.S.) 42:109-146.

Sockeye Salmon, Coho Salmon, Pink Salmon, Chum Salmon - Mature / Western Alaska, Northern British Columbia / Inshore / Route / Tagging

1332

Rich, W.H. 1932.
Salmon tagging experiments in Alaska, 1930. -- Bull. Bur. Fish. (U.S.) 47(11):399-406.

Coho Salmon, Chum Salmon, Pink Salmon, Sockeye Salmon - Mature / Southeastern Alaska, Northern British Columbia / Inshore / Route / Tagging

1333

Rich, W.H. 1937.
"Homing" of Pacific salmon. -- Science 85:477-478.

Pacific Salmon (General) / Homing

1334

Rich, W.H. 1937.
"Races" and "homing" of Pacific salmon. -- Science 86:122.

Pacific Salmon (General) / Homing

1335

Rich, W.H. 1939.
Local populations and migration in relation to the conservation of Pacific salmon in the western states and Alaska. Pp.45-50 in F.R. Moulton (ed.). The migration and conservation of salmon. -- Publ. Amer. Assoc. Adv. Sci. 8.

Pacific Salmon (General) / Homing, Route, Migration (General)

1336

Rich, W.H. 1942.
The salmon runs of the Columbia River in 1938. -- Fish. Bull. Fish Wildl. Serv. 50(37):103-147.

Sockeye Salmon, Chinook Salmon, Coho Salmon, Steelhead Trout - Mature / Washington, Oregon / River / Seasonal Timing / Count

1337

Rich, W.H., and H.B. Holmes. 1929.
Experiments in marking young chinook salmon on the Columbia River, 1916 to 1927. -- Bull. Bur. Fish. (U.S.) 44:215-264.

Chinook Salmon - Mature / Washington, Oregon / River / Seasonal Timing - Genetic Aspects / Marking

1338

Rich, W.H., and A.J. Suomela. 1927.
Salmon tagging experiments in Alaska, 1926. -- Bull. Bur. Fish. (U.S.) 43:71-104.

Sockeye Salmon, Coho Salmon, Pink Salmon, Chum Salmon - Mature / Southeastern Alaska, Northern British Columbia / Inshore / Route / Tagging

1339

Richter, E.J. 1947.
The effect of current on salmon movement. (Atlantic salmon and trout investigations, 1947. Vol.37). -- Fish. Res. Board Can. Manuscr. Rep. Biol. Stn. 393(3):3p.

Atlantic Salmon - Fingerling / Behaviour - Current / Laboratory Study

1340

Ricker, W.E. 1938.
"Residual" and kokanee salmon at Cultus Lake. -- J. Fish. Res. Board Can. 4(3):192-218.

Sockeye Salmon - Residual / Migration (General)

1341

Ricker, W.E. 1959.
Additional observations concerning residual sockeye and kokanee (*Oncorhynchus nerka*). -- J. Fish. Res. Board Can. 16(6):897-902.

Sockeye Salmon - Residual, Landlocked / Evolution

1342

Ricker, W.E. 1959.
Evidence for environmental and genetic influence on certain characters which distinguish stocks of the Pacific salmons and steelhead trout. -- Fish. Res. Board Can. Manuscr. Rep. Ser. (Biol.) 695:103p.

Pacific Salmon (General), Steelhead Trout - Mature / Homing, Straying, Seasonal Timing, Migration (General)

1343

Ricker, W.E. 1972.
Hereditary and environmental factors affecting certain salmonid populations. Pp.27-160 *in* R.C. Simon and P.A. Larkin (ed.). The stock concept *in* Pacific salmon. H.R. MacMillan Lectures in Fisheries, 1970. -- Institute of Animal Resource Ecology, University of British Columbia, Vancouver, British Columbia.

Pacific Salmon (General) / Direction Finding (General), Homing, Seasonal Timing, Migration (General) - Genetic Aspects

1344

Ricker, W.E., and A. Robertson. 1935.
Observations on the behaviour of adult sockeye salmon during the spawning migration. -- Can. Field Nat. 49:132-134.

Sockeye Salmon - Mature / Southern British Columbia / River, Tributary / Homing / Pattern - Obstruction / Marking

1345

Riddell, B.E., and W.C. Leggett. 1981.
Evidence of an adaptive basis for geographical variation in body morphology and time of downstream migration of juvenile Atlantic salmon (Salmo salar). -- Can. J. Fish. Aquat. Sci. 38(3):308-320.

Atlantic Salmon - Juvenile / Atlantic Canada and United States / River / Seasonal Timing - Evolution

1346

Ridgway, G.J. 1958.
Serological differentiations of population of sockeye salmon, Oncorhynchus nerka. -- U.S. Fish Wildl. Serv. Spec. Sci. Rep. Fish. 257:9p.

Sockeye Salmon / Stock Identification - Electrophoresis and Serology

1347

Ridgway, G.J., J.E. Cushing, and G.L. Durall. 1961.
Serological differentiation of populations of sockeye salmon, Oncorhynchus nerka. -- Int. North Pac. Fish. Comm. Bull. 3:5-10.

Sockeye Salmon / Stock Identification - Electrophoresis and Serology

1348

Ridgway, G.J., and G.W. Klontz. 1960.
Blood types in Pacific salmon. -- U.S. Fish Wildl. Serv. Spec. Sci. Rep. Fish. 324:9p.

Pacific Salmon (General) / Stock Identification - Electrophoresis and Serology

1349

Ridgway, G.J., and G.W. Klontz. 1961.
Blood types in Pacific salmon. -- Int. North Pac. Fish. Comm. Bull. 5:49-55.

Sockeye Salmon, Chinook Salmon, Chum Salmon, Pink Salmon / Stock Identification - Electrophoresis and Serology

1350

Ridgway, G.J., G.W. Klontz, and C. Matsumoto. 1962.
Intraspecific differences in serum antigens of red

salmon demonstrated by immunochemical methods. -- Int. North Pac. Fish. Comm. Bull. 8:1-13.

Sockeye Salmon / Pacific Ocean (General) / Stock Identification - Electrophoresis and Serology

1351

Roberson, K. 1967.
An occurrence of chinook salmon beach spawning in Lake Washington. -- Trans. Am. Fish. Soc. 96(4):423-424.

Chinook Salmon - Mature / Washington / Lake / Straying - Population Density, Water Temperature

1352

Robertson, A. 1921.
Further proof of the parent stream theory. -- Trans. Am Fish. Soc. 51:87-90.

Sockeye Salmon - Mature / Southern British Columbia / River, Tributary / Seasonal Timing, Homing

1353

Robertson, A. 1921.
Some observations on the growth of young sockeyes. -- Trans. Am. Fish. Soc. 51:91-96.

Sockeye Salmon - Juvenile / Southern British Columbia / Lake, River / Initiation of Downstream Migration - Size and Growth

1354

Robertson, O.H. 1948.
The occurence of increased activity of the thyroid gland in rainbow trout at the time of transformation from parr to silvery smolt. -- Physiol. Zool. 21:282-295.

Steelhead Trout - Fingerling, Smolt / Great Lakes / Smoltification - Morphological Aspects, Physiological and Biochemical Aspects, Thyroid system / Laboratory Study

1355

Robertson, O.H. 1949.
Production of the silvery smolt stage in rainbow trout by intramuscular injection of mammalian thyroid extract and thyrotropic hormone. -- J. Exp. Zool. 110(3):337-355.

Steelhead Trout - Smolt / Smoltification - Thyroid system, Morphological Aspects / Laboratory Study

1356

Robertson, O.H., M.A. Krupp, C.B. Favour, S. Hane, and S.F. Thomas. 1961.
Physiological changes occurring in the blood of the Pacific salmon (Oncorhynchus tshawytscha) accompanying sexual maturation and spawning. -- Endocrinology 68:733-746.

Chinook Salmon - Mature / River / Circulatory system , Interrenal system - Physiological and Biochemical Aspects (Stage of Migration) / Freshwater Adaptation / Laboratory Study

1357

Robertson, O.H., and B.C. Wexler. 1960.
Histological changes in the organs and tissues of migrating and spawning Pacific salmon (genus Oncorhynchus). -- Endocrinology 66:222-239.

Pacific Salmon (General) / River / Organ Systems (General) - Morphological Aspects (Stage of Migration)

1358

Robinson, D.G., and W.E. Barraclough. 1972.
Sockeye salmon (Oncorhynchus nerka) in Great Central Lake, British Columbia: length, weight and age of specimens caught during diel series, 1971. -- Fish. Res. Board Can. Manuscr. Rep. Ser. 1026:112p.

Sockeye Salmon - Juvenile / Southern British Columbia / Lake / Vertical Movement - Water Temperature / Hydroacoustics

1359

Roelofs, E.W. 1964.
Further studies of the Afognak Lake system. -- Alaska Dep. Fish Game Inf. Leafl. 41:18p.

Sockeye Salmon - Smolt / Western Alaska / River, Lake / Seasonal Timing / Count

1360

Rogers, D.W. 1974.
Chum salmon observations in four north coast streams. -- Calif. Fish Game 60(3):148.

Chum Salmon - Mature / California / Horizontal Distribution (Geographic)

1361

Rogers, H.M. 1938.
The marking of smolts on the Margaree, 1938. (Atlantic salmon and trout investigations, Vol.13). -- Fish. Res. Board Can. Manuscr. Rep. Biol. Stn. 130(11):12p.

Atlantic Salmon - Smolt / Atlantic Canada and United States / River / Speed of Migration - Water Level and Flow Rate / Diel Timing / Initiation of Downstream Migration - Water Temperature, Light Intensity, Turbidity, Water Level and Flow Rate / Marking, Count

1362

Romberg, G.P., and W.C. Renfro. 1973.
Radioactivity in juvenile Columbia River salmon: a model to distinguish differences in movement and feeding habits. -- Trans. Am. Fish. Soc. 102(2):317-322.

Chinook Salmon, Coho Salmon - Juvenile / Washington / River / Pattern / Modelling

1363

Rommel, S.A. 1972.
Sensitivity of American eels (Anguilla rostrata) and Atlantic salmon (Salmo salar) to weak electric fields and magnetic fields. -- Ph.D. thesis. -- University of Maine, Orono, Maine. -- 36p.

Atlantic Salmon / Direction Finding (General) - Magnetic Field, Electric Fields

1364

Rommel, S.A., and J.D. McCleave. 1973.
Prediction of oceanic electric fields in relation to fish migration. -- J. Cons. Cons. Int. Explor. Mer 35(1):27-31.

Salmon (General) - Adult / Orientation - Electric Fields

1365

Rooney, S.C. 1969.
Hematology of the parr to smolt transformation of the Atlantic salmon, Salmo salar. -- M.Sc. thesis. -- University of Maine, Orono, Maine.

Atlantic Salmon - Smolt / Smoltification, Circulatory system - Physiological and Biochemical Aspects

1366

Roppel, A.Y. 1956.
Peak hours of pink (Oncorhynchus gorbuscha) and chum (Oncorhynchus keta) salmon fry from Old Tom Creek, S.E. Alaska, 1952. -- Copeia 1956:110-111.

Pink Salmon, Chum Salmon - Fry / Southeastern Alaska / River / Diel Timing / Count

1367

Rosly, Yu.S. 1972.
Some peculiarities of the biology of the young chum from the Amur River. -- Tr. Vses. Nauchno-Issled. Inst. Morsk. Rybn. Khoz. Okeanogr. 83:300-306 (Fish. Res. Board Can. Transl. Ser. 3067).

Chum Salmon - Fry, Alevin / Sea of Okhotsk / River / Initiation of Downstream Migration - Water Level and Flow Rate

1368

Roule, L. 1914.
Sur l'influence exercée sur la migration de montée du saumon (Salmo salar L.) par la proportion d'oxygène dissous dans l'eau des fleuves. -- C. R. Hebd. Séances Acad. Sci. Paris 158:1364-1366.

Not seen.

Atlantic Salmon - Mature / River / Energetics

1369

Roule, L. 1914.
Sur les conditions biologiques de la migration démontree du saumon (Salmo salar L.). -- C. R. Soc. Biol. Paris 76:838-839.

Not seen.

Atlantic Salmon - Mature / River / Migration (General)

1370

Roule, L. 1915.
Sur les nouvelles recherches concernant la migration de montée des saumons. -- C. R. Hebd. Séances Acad. Sci. Paris 161:707-709.

Not seen.

Atlantic Salmon - Mature / River / Migration (General)

1371

Roule, L. 1919.
Sur la pigmentation des alevins du saumon (Salmo salar L.) et sur ses relations avec le premier séjour en rivière et la première migration à la mer. -- C. R. Hebd. Séances Acad. Sci. Paris 168:966-967.

Not seen.

Atlantic Salmon - Juvenile / Skeletal and Integumentary System - Morphological Aspects (Stage of Migration)

1372

Roule, L. 1921.
La biologie migratrice du saumon (S. salar L.) dans le Rhin. -- C. R. Assoc. Fr. Sci. Paris 44:273-276.

Not seen.

Atlantic Salmon / Southern Europe / Migration (General)

1373

Roule, L. 1927.
Étude de quelques alevins de descente (Pintos ou Tacons) du saumon (Salmo salar L.) provenant du fleuve côtier Pas (nord de l'Espagne). -- Notas Res. Min. Marina Madrid 2(20):3p.

Not seen.

Atlantic Salmon - Juvenile / Southern Europe

1374

Roule, L. 1929.
Étude sur les conditions actuelles de la montée migratrice du saumon Atlantique (Salmo salar L.) dans le cours d'eau de la France. -- Rapp. P.-V. Cons. Int. Explor. Mer 62:80-90.

Atlantic Salmon - Mature / Southern Europe / River

1375

Roule, L., and R.D. Drouin de Bouville. 1927.
Considérations sur la pénétration du saumon, Salmo salar L., dans les estuaires du littoral de la France pour le debut de sa migration de montée. -- Bull. Inst. Océanogr. Monaco 504:1-14.

Not seen.

Atlantic Salmon - Mature / Southern Europe / Estuary

1376

Rounsefell, G.A. 1958.
Anadromy in North American Salmonidae. -- Fish. Bull. Fish Wildl. Serv. 58(131):171-185.

Salmon (General) / Migration (General)

1377

Rounsefell, G.A., and G.B. Kelez. 1938.
The salmon and salmon fisheries of Swiftsure Bank, Puget Sound and the Fraser River. -- Bull. Bur. Fish. (U.S.) 49(27):693-823.

Pink Salmon, Sockeye Salmon, Chum Salmon, Coho Salmon, Chinook Salmon - Mature / Southern British Columbia, Washington / Inshore, Estuary / Seasonal Timing / Capture

1378

Rowland, R.G. 1969.
Relation of scale characteristics to river origin in four stocks of chinook slamon (Oncorhynchus tshawytscha) in Alaska. -- U.S. Fish Wildl. Serv. Spec. Sci. Rep. Fish. 577:5p.

Chinook Salmon / Central Alaska, Southeastern Alaska / Stock Identification - Scale Analysis

1379

Royal, L.A. 1953.
The effects of regulatory selectivity on the productivity of Fraser River sockeye. -- Can. Fish Cult. 14:1-12.

Sockeye Salmon - Mature / Southern British Columbia / River / Seasonal Timing - Water Temperature

1380

Royal, L.A., and J.P. Tully. 1961.
Relationship of variable oceanographic factors to migration and survival of Fraser River salmon. -- Calif. Coop. Fish. Invest. Rep. 8:65-68.

Pink Salmon, Sockeye Salmon - Mature / Southern British Columbia / Inshore / Route - Current, Water Temperature, Salinity

1381

Royce, W.F., L.S. Smith, and A.C. Hartt. 1968.
Models of oceanic migrations of Pacific salmon and comments on guidance mechanisms. -- Fish. Bull. 66(3):441-462.

Sockeye Salmon, Pink Salmon - Immature, Mature / Pacific Ocean (General) / Inshore, Open Ocean / Route, Seasonal Timing, Speed of Migration / Direction Finding (General) - Celestial Cues, Current, Electric Fields / Capture, Tagging

1382

Ruggles, C.P. 1966.
Depth and velocity as a factor in stream rearing and production of juvenile coho salmon. -- Can. Fish. Cult. 38:37-53.

Coho Salmon - Fry, Fingerling / Behaviour - Current / Initiation of Downstream Migration - Water Temperature, Current / Direction

1383

Ruggles, C.P. 1980.
A review of the downstream migration of Atlantic salmon. -- Can. Tech. Rep. Fish. Aquat. Sci. 952:39p.

Atlantic Salmon - Smolt / Smoltification - Morphological Aspects, Physiological and Biochemical Aspects, Size and Growth / Osmoregulatory and Excretory System, Seawater Adaptation - Physiological and Biochemical Aspects / Seasonal Timing, Diel Timing, Behaviour / Initiation of Downstream Migration - Water Temperature, Light Intensity, Influences (Miscellaneous) / Taxis - Current / Migration (General) - Obstruction, Reservoirs and Impoundments

1384

Ruggles, C.P., and P. Ryan. 1964.
An investigation of louvers as a method of guiding juvenile Pacific salmon. -- Can. Fish Cult. 33:1-68.

Pacific Salmon (General) - Juvenile / Guiding

1385

Rukhlov, F.N. 1969.
The natural reproduction of the autumn chum salmon (Oncorhynchus keta (Walb.)) on Sakhalin. -- Probl. Ichthyol. 9(2):217-223.

Chum Salmon - Fry / Sea of Okhotsk / River / Seasonal Timing, Speed of Migration, Schooling, Diel Timing / Initiation of Downstream Migration - Water Level and Flow Rate / Count

1386

Rukhlov, F.N., and O.S. Lyubayeva. 1980.
The results of marking of young pink salmon, Oncorhynchus gorbuscha, in the Sakhalin fish hatcheries in 1976. -- J. Ichthyol. 20(1):110-118.

Pink Salmon - Adult / Sea of Okhotsk, Sea of Japan / Route / Marking

1387

Russell, E.S. 1937.
Fish migrations. -- Biol. Rev. 12:320-337.

Salmon (General) - Mature / Homing

1388

Russell, P.A. 1972.
Frazer Lake sockeye investigations, 1970. -- Alaska Dep. Fish Game Inf. Leafl. 159:83p.

Sockeye Salmon - Smolt, Juvenile, Mature / Central Alaska / River, Lake / Seasonal Timing - Age, Size and Growth / Vertical Distribution - Time of Day / Vertical Movement / Hydroacoustics / Count

1389

Rutter, C. 1902.
Natural history of the Quinnat salmon: a report on investigations in the Sacramento River, 1896-1901. -- Bull. U.S. Fish Comm. 22:65-141.

Chinook Salmon - Alevin, Fry, Juvenile, Mature / California / River, Estuary / Behaviour, Schooling, Pattern, Diel Timing, Homing, Speed of Migration / Seasonal Timing, Initiation of Downstream Migration - Turbidity, Water Level and Flow Rate / Initiation of Upstream Migration - Weather / Route - Time of Year / Organ Systems (General), Skeletal and Integumentary System, Digestive system - Morphological Aspects (Stage of Migration) / Count

1390

Saddler, J.B., K.V. Koski, and R.D. Cardwell. 1972.
Fatty acid alterations during migration and early

seawater growth of chum salmon (Oncorhynchus keta). -- Lipids 7(2):90-95.

Chum Salmon - Fry, Immature / Seawater Adaptation - Physiological and Biochemical Aspects / Digestive system - Physiological and Biochemical Aspects (Stage of Migration) / Energetics / Laboratory Study

1391

Saila, S.B., and R.A. Shappy. 1963.
Random movement and orientation in salmon migration. -- J. Cons. Cons. Int. Explor. Mer 28:153-166.

Salmon (General) - Mature / Direction Finding (General), Speed of Migration, Energetics, Random Movement, Homing, Migration (General) / Initiation of Homing Migration - Endocrine System (General), Pituitary system / Modelling

1392

Saito, S., and S. Nakane. 1967.
On the horizontal movement of salmon as indicated by the surface gillnet catches. I. Direction of movement of salmon off the west coast of the Kamchatka Peninsula. -- Bull. Jpn. Soc. Sci. Fish. 33(7):641-650.

In Japanese; English abstract.

Pink Salmon, Chum Salmon - Adult / Sea of Okhotsk / Open Ocean / Direction, Pattern / Capture

1393

Sakagawa, G.T. 1972.
The dynamics of juvenile salmon, with particular emphasis on pink salmon (Oncorhynchus gorbuscha), during their early marine life. -- Ph.D. thesis. -- University of Washington, Seattle, Washington. -- 375p.

Chum Salmon, Pink Salmon, Sockeye Salmon, Coho Salmon, Chinook Salmon - Immature / Washington, Southern British Columbia, Northern British Columbia, Southeastern Alaska, Central Alaska / Route - Current / Tagging, Capture

1394

Sakano, E. 1956.
Marking experiments of young salmon in Hokkaido: II. Results recaptured in 1955. -- Sci. Rep. Hokkaido Fish Hatchery 11:45-57.

In Japanese; English abstract.

Pacific Salmon (General) / Marking

1395

Sandman, J.A. 1906.
Danmark markt lax infangad i Finland. -- Fiskeritidskr. Finl. 15:206-208.

Atlantic Salmon - Adult / Iceland and Northern Europe / Inshore / Route

1396

Sandman, J.A. 1907.
I Finland markt lax ater fangad vid tyska Ostersjokusten. -- Fiskeritidskr. Finl. 16:158-159.

Atlantic Salmon - Adult / Iceland and Northern Europe / Inshore / Route

1397

Sano, S. 1951.
On the stock of salmon (Oncorhynchus keta Walbaum) in the coastal waters of Japan and their homing instinct. -- Sci. Rep. Hokkaido Fish Hatchery 6(1):1-10.

In Japanese; Not seen.

Chum Salmon - Mature / Japan / Homing

1398

Sano, S. 1959.
The ecology and propagation of genus Oncorhynchus found in northern Japan. -- Sci. Rep. Hokkaido Salmon Hatchery 14:21-90.

In Japanese; English abstract.

Pink Salmon, Masu Salmon, Sockeye Salmon, Coho Salmon, Chinook Salmon / Japan / Migration (General)

1399

Sano, S. 1967.
Salmon of the North Pacific Ocean. Part IV. Spawning populations of North Pacific salmon. 3. Chum salmon in the far east. -- Int. North Pac. Fish. Comm. Bull. 23:23-41.

Chum Salmon - Mature / Sea of Okhotsk, Eastern Kamchatka to Chuchuki Peninsula, Japan / Inshore, River / Seasonal Timing

1400

Sano, S., and S. Abe. 1967.
Ecological studies of masu salmon (*Oncorhynchus masou*) (Brevoort): the observation on the smolt in the coastal waters. -- Sci. Rep. Hokkaido Salmon Hatchery 21:1-9.

In Japanese; English abstract.

Masu Salmon - Immature / Japan / Inshore, Estuary / Pattern

1401

Sano, S., and T. Kobayashi. 1952.
An ecological study on the salmon fry, *Oncorhynchus keta*. I. -- Sci. Rep. Hokkaido Fish Hatchery 7(1):1-10.

In Japanese; English abstract.

Chum Salmon - Fry / Japan / River / Seasonal Timing - Water Temperature

1402

Sano, S., and T. Kobayashi. 1953.
An ecological study of the salmon fry, *Oncorhynchus keta*: (II.) The migration and growth of the fry in the marking experiment. -- Sci. Rep. Hokkaido Fish Hatchery 8:71-79.

In Japanese; English abstract.

Chum Salmon - Immature / Japan / Inshore / Route / Marking

1403

Sasaki, S. 1966.
Distribution and food habits of king salmon, *Oncorhynchus tshawytscha*, and steelhead rainbow trout, *Salmo gairdneri*, in the Sacramento-San Joaquin Delta. -- Calif. Dep. Fish Game Fish Bull. 136:108-114.

Chinook Salmon - Juvenile / California / River, Estuary / Seasonal Timing

1404

Sato, R. 1937.
On new migratory courses of salmon (*Oncorhynchus*) cleared by the tagging experiments in the fishing ground of northern North Pacific, 1936. I. Red salmon (*Oncorhynchus nerka* (Walb.)). -- Bull. Jap. Soc. Sci. Fish. 6(4):171-174.

In Japanese; English abstract.

Sockeye Salmon - Mature / Eastern Kamchatka to Chuchuki Peninsula / Inshore / Route / Tagging

1405

Sato, R. 1938.
On new migratory courses of salmon cleared by the tagging experiments in the fishing ground of northern North Pacific, 1936. III. Oncorhynchus gorbuscha (Walb.). -- Bull. Jap. Soc. Sci. Fish. 6(6):299-304.

In Japanese; English abstract.

Pink Salmon - Mature / Eastern Kamchatka to Chuchuki Peninsula, Sea of Okhotsk / Inshore, Open Ocean / Route / Tagging

1406

Sato, R. 1938.
On new migratory courses of salmon cleared by the tagging experiments in the fishing ground of northern North Pacific, in 1936. II. Oncorhynchus keta (Walb.). -- Bull. Jap. Soc. Sci. Fish. 6(5):251-261.

In Japanese; English abstract.

Chum Salmon - Mature / Sea of Okhotsk, Eastern Kamchatka to Chuchuki Peninsula / Inshore, Open Ocean / Route / Tagging

1407

Sato, R. 1938.
On the migratory speed of salmon and the stock of red salmon calculated by the tagging experiments in the North Pacific. -- Bull. Jap. Soc. Sci. Fish. 7(1):21-23.

In Japanese; English abstract.

Sockeye Salmon - Adult / Sea of Okhotsk / Open Ocean / Speed of Migration / Tagging

1408

Sato, R. 1939.
On salmon tagging experiments in northern North Pacific, in 1937 and 1938. -- Bull. Jap. Soc. Sci. Fish. 8(4):178-184.

In Japanese; English abstract.

Pacific Salmon (General) / Eastern Kamchatka to Chuchuki Peninsula, Sea of Okhotsk / Tagging

1409

Sato, R. 1966.
The role of olfaction in return of chum salmon, Oncorhynchus keta (Walbaum). Pp.20 in N. Kawameto (convener). Physiological basis of fish migration in the Pacific area. -- Proc. Pac. Sci. Congr. 11(7).

Chum Salmon - Mature / Direction Finding (General) - Odours

1410

Sato, R., T.H. Bilton, and M.P. Shepard. 1958.
Variations in scale characteristics of chum salmon (Oncorhynchus keta) of the northern Pacific area. -- Fish. Res. Board Can. Manuscr. Rep. Ser. (Biol.) 666:24p.

Chum Salmon / Pacific Ocean (General) / Stock Identification - Scale Analysis

1411

Sato, R., and T. Maiwa. 1971.
Studies on the chum salmon returning to the Otsuchi River, Japan. II. Movement of mature fish to the river from coastal areas. -- Bull. Jap. Soc. Sci. Fish. 37(11):1037-1043.

Chum Salmon - Mature / Japan / Estuary / Speed of Migration, Route, Pattern / Tagging

1412

Sato, R., M. Omori, and T. Maiwa. 1968.
Studies on the chum salmon returning to Otsuchi River, Japan. I. Movement of the tagged spawning fish to rivers from the coastal sea area. -- Bull. Jap. Soc. Sci. Fish. 34(12):1107-1111.

Chum Salmon - Mature / Japan / Inshore, Estuary, River / Route, Homing / Tagging

1413

Saunders, B.L., and J.B. Sprague. 1967.
Effects of copper-zinc mining pollution on a spawning migration of Atlantic salmon. -- Water Res. 1967(1):419-432.

Atlantic Salmon - Mature / Atlantic Canada and United States / River / Seasonal Timing, Reverse Migration, Route - Pollutants / Count, Tagging

1414

Saunders, J.W. 1960.
The effect of impoundment on the population and movement of Atlantic salmon in Ellerslie Brook, Prince Edward Island. -- J. Fish. Res. Board Can. 17(4):453-473.

Atlantic Salmon - Fingerling, Smolt, Mature / Atlantic Canada and United States / River, Reservoir or Impoundment, Estuary / Initiation of Stream Entry, Seasonal Timing - Water Level and Flow Rate / Smoltification / Speed of Migration - Reservoirs and Impoundments / Pattern - Reservoirs and Impoundments / Tagging, Count

1415

Saunders, R.L. 1965.
Adjustment of buoyancy in young Atlantic salmon and brook trout by changes in swimbladder volume. -- J. Fish. Res. Board Can. 22(2):335-352.

Atlantic Salmon - Fingerling, Alevin, Smolt / Atlantic Canada and United States / Smoltification, Organ Systems (General) - Physiological and Biochemical Aspects / Behaviour

1416

Saunders, R.L. 1967.
Seasonal pattern of return of Atlantic salmon in the north-west Miramichi River, New Brunswick. -- J. Fish. Res. Board Can. 24(1):21-32.

Atlantic Salmon - Smolt, Mature / Atlantic Canada and United States / River / Seasonal Timing - Age / Count, Tagging

1417

Saunders, R.L. 1969.
Contributions of salmon from the northwest Miramichi River, New Brunswick, to various fisheries. -- J. Fish. Res. Board Can. 26(2):269-278.

Atlantic Salmon - Adult / Atlantic Canada and United States, Greenland / Inshore / Route / Tagging

1418

Saunders, R.L. 1981.
Atlantic salmon (Salmo salar) stocks and management implications in the Canadian Atlantic provinces and New England, U.S.A. -- Can. J. Fish. Aquat. Sci. 38(12):1612-1625.

Atlantic Salmon / Atlantic Canada and United States / Migration (General)

1419

Saunders, R.L., and J.H. Gee. 1964.
Movements of young Atlantic salmon in a small stream. -- J. Fish. Res. Board Can. 21(1):27-36.

Atlantic Salmon - Fingerling, Fry / Atlantic Canada and United States / River / Non Migratory Movements, Homing / Marking, Tagging

1420

Saunders, R.L., and E.B. Henderson. 1970.
Influence of photoperiod on smolt development and growth of Atlantic salmon (Salmo salar). -- J. Fish. Res. Board Can. 27(7):1295-1311.

Atlantic Salmon - Smolt / Atlantic Canada and United States / Smoltification, Seawater Adaptation - Physiological and Biochemical Aspects, Endocrine System (General) / Laboratory Study

1421

Saunders, R.L., and E.B. Henderson. 1978.
Changes in gill ATPase activity and smolt status of Atlantic salmon (Salmo salar). -- J. Fish. Res. Board Can. 35(12):1542-1546.

Atlantic Salmon - Fingerling, Smolt / Atlantic Canada and United States / Smoltification, Osmoregulatory and Excretory System - Physiological and Biochemical Aspects (Time of Year, Photoperiod) / Seawater Adaptation / Laboratory Study

1422

Saunders, R.L., E.B. Henderson, and B.D. Glebe. 1982.
Precocious sexual maturation and smoltification in male Atlantic salmon. -- Aquaculture 28(1/2):211-229.

Atlantic Salmon - Smolt / Smoltification - Physiological and Biochemical Aspects

1423

Saunders, R.L., C.J. Kerswill, and P.F. Elson. 1965.
Canadian salmon recaptured near Greenland. -- J. Fish. Res. Board Can. 22(2):625-629.

Atlantic Salmon - Adult / Atlantic Canada and United States, Greenland / Route / Tagging

1424

Schaffer, W.M., and P.F. Elson. 1975.
The adaptive significance of variations in life history among local populations of Atlantic salmon in North America. -- Ecology 56(3):577-590.

Atlantic Salmon / Migration (General) - Evolution

1425

Scheer, B.T. 1939.
Homing instinct in salmon. -- Quart. Rev. Biol. 14(4):408-430.

Salmon (General) / Homing, Straying

1426

Schmidt-Koenig, K. 1975.
Migration and homing in animals. -- Springer-Verlag, New York, New York. -- 99p.

Salmon (General) / Direction Finding (General), Homing

1427

Schneider, P.W. 1971.
Some effects of photoperiod and diet on smoltification of Atlantic salmon, Salmo salar. -- M.Sc. thesis. -- University of Maine, Orono, Maine.

Atlantic Salmon - Smolt / Smoltification - Photoperiod, Size and Growth

1428

Schofield, E.J. 1967.
Daily counts of Atlantic salmon at the Curventon counting fence on the northwest Miramichi River, New Brunswick. -- Fish. Res. Board Can. Manuscr. Rep. Ser. 906:27p.

Atlantic Salmon - Mature / Atlantic Canada and United States / River / Seasonal Timing / Count

1429

Schofield, E.J. 1968.
Daily counts of Atlantic salmon and other fish at the Curventon counting fence on the northwest Miramichi River, New Brunswick, in 1967. -- Fish. Res. Board Can. Manuscr. Rep. Ser. 1002:38p.

Atlantic Salmon - Mature, Smolt / Atlantic Canada and United States / River / Seasonal Timing / Count

1430

Scholz, A., D.M. Madison, A.B. Stasko, R.M. Horrall, and A.D. Hasler. 1972.
Orientation of salmon in response to currents in or near the home stream. -- Am. Zool. 12(4):654.

Chum Salmon, Coho Salmon - Mature / Inshore / Pattern - Current / Direction Finding (General) - Odours

1431

Scholz, A., D.M. Madison, A.B. Stasko, R.M. Horrall, and A.D. Hasler. 1972.
Orientation of salmon in response to currents in or near the home stream. -- Bull. Ecol. Soc. Am. 53(4):20-21.

Chum Salmon, Coho Salmon - Mature / Estuary / Direction Finding (General) - Odours / Pattern - Current / Sonic or Radio Tracking

1432

Scholz, A.T. 1980.
Hormonal regulation of smolt transformation and olfactory imprinting in coho salmon. -- Ph.D. thesis. -- University of Wisconsin, Madison, Wisconsin.

Coho Salmon - Smolt / Smoltification - Physiological and Biochemical Aspects, Thyroid system, Photoperiod / Imprinting and Learning - Thyroid system / Olfactory system - Physiological and Biochemical Aspects

1433

Scholz, A.T. 1982.
Hormonal regulation of smolt transformation and olfactory imprinting in coho salmon. Pp.190 in E.L. Brannon and E.O. Salo (ed.). Proceedings of the Salmon and Trout

Migratory Behavior Symposium. -- School of Fisheries, University of Washington, Seattle, Washington.

Coho Salmon - Smolt / Imprinting and Learning, Smoltification - Thyroid system, Interrenal system

1434

Scholz, A.T., J.C. Cooper, D.M. Madison, R.M. Horrall, A.D. Hasler, A.E. Dizon, and R.J. Poff. 1973.
Olfactory imprinting in coho salmon: behavioral and electrophysiological evidence. -- Proc. Conf. Great Lakes Res. 16:143-153.

Coho Salmon - Juvenile / Olfactory system - Physiological and Biochemical Aspects / Imprinting and Learning

1435

Scholz, A.T., C.K. Gosse, J.C. Cooper, R.M. Horrall, A.D. Hasler, R.I. Daly, and R.J. Poff. 1978.
Homing of rainbow trout transplanted in Lake Michigan: a comparison of three procedures used for imprinting and stocking. -- Trans. Am. Fish. Soc. 107(3):439-443.

Steelhead Trout - Fingerling, Smolt, Mature / Great Lakes / Tributary, Lake / Imprinting and Learning / Direction Finding (General) - Odours / Straying, Homing / Marking

1436

Scholz, A.T., R.M. Horrall, J.C. Cooper, and A.D. Hasler. 1976.
Imprinting to chemical cues: the basis for home stream selection in salmon. -- Science 192(4245):1247-1249.

Coho Salmon - Juvenile, Mature / Imprinting and Learning / Direction Finding (General) - Odours / Homing

1437

Schoning, R.W., and D.R. Johnson. 1956.
A measured delay in the migration of adult chinook salmon at Bonneville Dam on the Columbia River. -- Oreg. Fish Comm. Contrib. 23:16p.

Chinook Salmon - Mature / Oregon / River, Artificial Obstruction / Speed of Migration - Obstruction / Tagging

1438

Schreck, C.B. 1982.
Parr-smolt transformation and behavior. Pp.164-172 in E.L. Brannon and E.O. Salo (ed.). Proceedings of the Salmon and Trout Migratory Behavior Symposium. -- School of Fisheries, University of Washington, Seattle, Washington.

Salmon (General) - Smolt / Seasonal Timing, Behaviour / Smoltification - Endocrine System (General), Morphological Aspects, Physiological and Biochemical Aspects / Osmoregulatory and Excretory System - Physiological and Biochemical Aspects

1439

Scofield, N.B. 1916.
The humpback and dog salmon taken in the San Lorenzo River. -- Calif. Fish Game 2(1):41.

Chum Salmon, Pink Salmon - Mature / California / Horizontal Distribution (Geographic)

1440

Scofield, W.L. 1937.
A silver salmon at Los Coronados Islands. -- Calif. Fish Game 23(3):245.

Coho Salmon - Adult / Mexico / Inshore / Horizontal Distribution (Geographic)

1441

Sedgwick, D. 1953.
Differentiation of early and late running salmon. -- Salmon Trout Mag. 137:77-82.

Atlantic Salmon - Mature / Atlantic Canada and United States / River / Seasonal Timing - Genetic Aspects

1442

Seibel, M.C. 1965.
Test fishing in Bristol Bay. -- Alaska Dep. Fish Game Inf. Leafl. 67:39p.

Sockeye Salmon - Mature / Western Alaska / Inshore, Estuary, River / Seasonal Timing / Capture, Count

1443

Semko, R.S. 1958.
Some data on the exploitation, distribution and

migration of Far-eastern salmon in the open ocean. Pp.8-30 in P.A. Moiseeva (ed.). Materialy po Biologii Morskovo Perioda Zhinzni Dalnevastochnykh Lososei. -- Vsesoiuznyi Nauchno-Issledovatel'skii Institut Morskogo Rybnogo Khoziaistva i Okeanografi, Moskva, USSR. (Fish. Res. Board Can. Transl. Ser. 179).

Pink Salmon, Chum Salmon, Sockeye Salmon, Coho Salmon, Chinook Salmon - Mature, Immature / Sea of Okhotsk, Western Pacific Ocean, Bering Sea, Eastern Kamchatka to Chuchuki Peninsula / Open Ocean / Horizontal Distribution (Geographic), Route - Water Temperature, Food Availability / Capture

1444

Senn, H.G., and R.E. Noble. 1968.
Contribution of coho salmon *Oncorhynchus kisutch* from a Columbia River watershed hatchery. -- *Wash. Dep. Fish*. Fish. Res. Pap. 3(1):51-61.

Coho Salmon - Adult / Washington, Southern British Columbia, Oregon, California / Route / Marking

1445

Sergejeff, K. 1960.
Salmon species new to the Arctic Ocean. -- Suom. Kalastuslehti 67(6):219-221 (Fish. Res. Board Can. Transl. Ser. 427).

Pink Salmon - Mature / Western Arctic Russia, Iceland and Northern Europe / Inshore / Route

1446

Shapovalov, L. 1939.
The homing instinct of trout and salmon. -- Proc. Pac. Sci. Congr. 6(3):317-322.

Salmon (General) / Homing

1447

Shapovalov, L. 1951.
A remarkable sea journey by a rainbow trout (*Salmo gairdnerii*) of "interior stock." -- Calif. Fish Game 37(4):489-490.

Steelhead Trout - Adult / California, Oregon / Inshore / Route, Speed of Migration, Straying / Tagging

1448

Shapovalov, L., and A.C. Taft. 1954.
The life histories of the steelhead rainbow trout (*Salmo gairdneri gairdneri*), and silver salmon, (*Oncorhynchus kisutch*), with special reference to Waddell Creek, California, and recommendations regarding their management. -- Calif. Dep. Fish Game Fish Bull. 98:375p.

Steelhead Trout, Coho Salmon / California / Migration (General)

1449

Shearer, W.M. 1958.
The movements of salmon tagged in the sea, Montrose, 1954, 1955. -- Scott. Home Dep. Freshwater Salmon Fish. Res. 20:11p.

Atlantic Salmon - Adult / Southern Europe / Inshore / Route / Tagging

1450

Shearer, W.M. 1961.
The capture of a Pacific salmon in Scottish waters. -- Scott. Fish. Bull. 14:22.

Pink Salmon - Adult / Western Arctic Russia, Southern Europe / Route

1451

Shearer, W.M. 1964.
The recapture of Scottish tagged salmon off the west Greenland coast. -- Scott. Fish. Bull. 22:19.

Atlantic Salmon - Adult / Southern Europe, Greenland / Route / Tagging

1452

Shearer, W.M. 1966.
Movements of salmon from the sea during the annual close time in the River North Esk. -- Salmon Net 2:42-45.

Atlantic Salmon - Mature / Southern Europe / River / Migration (General)

1453

Shearer, W.M., and E. Trewavas. 1960.
A Pacific salmon (*Oncorhynchus gorbuscha*) in Scottish waters. -- Nature 188:868.

Pink Salmon - Adult / Western Arctic Russia, Southern Europe / Route

1454

Shelbourn, J.E. 1966.
Influence of temperature, salinity, and photoperiod on the aggregations of chum salmon fry (*Oncorhynchus keta*). -- J. Fish. Res. Board Can. 23(2):293-304.

Pink Salmon - Fry / Schooling - Salinity, Photoperiod, Water Temperature / Migration (General)

1455

Shepard, M.P. 1948.
Responses of young chum salmon, *Oncorhynchus keta* (Walbaum), to changes in the sea water content of the environment. -- M.A. thesis. -- University of British Columbia, Vancouver, British Columiba. -- 50p.

Chum Salmon - Fry / Preference - Salinity

1456

Shepard, M.P. 1962.
Distribution and racial origin of chum salmon on the high seas of the North Pacific Ocean and Bering Sea. -- Fish. Res. Board Can. Manuscr. Rep. Ser. (Biol.) 731:34p.

Chum Salmon - Immature, Mature / Eastern Pacific Ocean, Western Pacific Ocean, Central Pacific Ocean, Bering Sea / Open Ocean / Route, Horizontal Distribution (Geographic) / Tagging / Stock Identification - Scale Analysis

1457

Shepard, M.P., K.V. Aro, and F.C. Withler. 1962.
Exploitation by United States and Canadian fisheries on pink and sockeye salmon enroute to northern British Columbia and southern Southeast Alaska. -- Fish. Res. Board Can. Manuscr. Rep. Ser. (Biol.) 728:88p.

Pink Salmon, Sockeye Salmon - Mature / Southeastern Alaska, Northern British Columbia, Southern British Columbia / Inshore / Route / Tagging

1458

Shepard, M.P., A.C. Hartt, and T. Yonemori. 1968.
Salmon of the North Pacific Ocean: Part VIII. Chum salmon in offshore waters. -- Int. North Pac. Fish. Comm. Bull. 25:69p.

Chum Salmon - Immature, Mature / Pacific Ocean (General) / Open Ocean / Horizontal Distribution (Geographic), Seasonal Timing, Route, Speed of Migration / Capture, Tagging / Stock Identification - Scale Analysis, Parasite Tags, Morphometrics and Meristics, Electrophoresis and Serology

1459

Shepard, M.P., C.E. Turner, K.V. Aro, and L.W. Barner. 1967.
Results of salmon longline fishing surveys in the Gulf of Alaska in 1966-1967. -- Fish Res. Board Can. Manuscr. Rep. Ser. 924:43p.

Sockeye Salmon, Chum Salmon, Pink Salmon, Coho Salmon, Steelhead Trout, Chinook Salmon - Adult / Eastern Pacific Ocean / Open Ocean / Horizontal Distribution (Geographic) / Capture

1460

Shepard, M.P., C.E. Turner, K.V. Aro, and H.T. Bilton. 1967.
Results of salmon longline fishing surveys in the Gulf of Alaska in 1966. -- Fish. Res. Board Can. Mansucr. Rep. Ser. 923:37p.

Sockeye Salmon, Pink Salmon - Adult / Eastern Pacific Ocean / Open Ocean / Seasonal Timing, Horizontal Distribution (Geographic) / Capture

1461

Shepherd, B.G. 1982.
Biological reconnaissance of Mathers and Palland Creeks, Queen Charlotte Islands, December 1977 to December 1978. -- Can. Manuscr. Rep. Fish. Aquat. Sci. 1648:121p.

Chum Salmon - Fry / Northern British Columbia / River, Estuary / Seasonal Timing, Initiation of Downstream Migration - Water Temperature, Water Level and Flow Rate / Diel Timing, Pattern, Route / Count

1462

Sheridan, W.L. 1962.
Relation of stream temperature to timing of pink salmon escapements in southeast Alaska. Pp.87-102 in N.J. Wilimovsky (ed.). Symposium on pink salmon. H.R. MacMillan Lectures in Fisheries, 1960. -- Institute of Fisheries, University of British Columbia, Vancouver, British Columbia.

Pink Salmon - Fry, Mature / Southeastern Alaska / River / Seasonal Timing - Water Temperature, Water Level and Flow Rate

1463

Shershnev, A.D., and A.I. Zhul'kov. 1979.
Features of the downstream migration of young pink salmon and some indices of the efficiency of reproduction of pink salmon, Oncorhynchus gorbuscha, from Pritornaya River.

-- J. Ichthyol. 19(1):114-119.

Pink Salmon - Fry / Sea of Japan / River / Seasonal Timing - Population Density / Diel Timing - Time of Year / Capture

1464

Shibuya, M., Y. Koyama, K. Musubida, and T. Maeba. 1967.
Study on identification of the Pacific salmon by neutron activation analysis. = Chuseishi Hoshaka bunseki riyo ni yoru sake masu no keitogun shikibetsu ni kansuru kenkyu. -- Suisan-Cho Chosa Kenkyu-Bu, Tokyo, Japan. -- 22p. (Fish. Res. Board Transl. Ser. 1655).

Chum Salmon / Japan / Stock Identification - Biogeochemical Analysis

1465

Shimazaki, K. 1967.
Hydrographic condition of the pink salmon fishing ground in the southern Kurile waters in June 1961-1964. -- Bull. Fac. Fish. Hokkaido Univ. 17(4):175-183.

In Japanese; English abstract.

Pink Salmon - Adult / Western Pacific Ocean / Inshore, Open Ocean / Horizontal Distribution (Geographic) - Water Temperature / Capture

1466

Shimazaki, K. 1971.
Notes on biological characteristics and migration of the masu salmon, Oncorhynchus masou (Brevoort), in the offshore areas of the west coast of Kamchatka Peninsula. -- Bull. Fac. Fish. Hokkaido Univ. 22(1):37-45.

In Japanese; English abstract.

Masu Salmon - Adult / Sea of Okhotsk / Open Ocean / Seasonal Timing, Route / Capture

1467

Shimazaki, K., and N. Nakayama. 1975.
Distribution of three salmonid fishes (Oncorhynchus) in

the northwestern North Pacific in winter. -- Bull. Fac. Fish. Hokkaido Univ. 26(1):87-98.

In Japanese; English abstract.

Sockeye Salmon, Chum Salmon, Pink Salmon - Immature / Pacific Ocean (General) / Open Ocean / Horizontal Distribution (Geographic) - Age, Water Temperature, Time of Year / Capture

1468

Shimomura, M. 1969.
Histological changes of various organs in the fry of chum salmon and of rainbow trout during the seaward migration or following the experimental transference into sea water from fresh water. -- Bull. Jap. Soc. Sci. Fish. 35(3):273-283.

In Japanese; English abstract.

Chum Salmon - Fry / Organ Systems (General), Osmoregulatory and Excretory System - Morphological Aspects (Stage of Migration) / Seawater Adaptation

1469

Shimomura, T. 1959.
Effects of the typhoon "Ruth" (1951) upon the sea conditions and fishing. -- Bull. Jap. Sea Reg. Fish. Res. Lab. 7:109-118.

In Japanese; English abstract.

Chum Salmon - Adult / Sea of Japan / Horizontal Distribution (Geographic) - Water Temperature

1470

Shiraishi, Y., and T. Shimada. 1972.
Studies on the effective stocking of salmonid fish: II. Activity of down migration of Himemasu, Oncorhynchus nerka, soon after stocking with special reference to the factors of their migration. -- Bull. Freshwater Fish. Res. Lab. Tokyo 22(1):1-12.

In Japanese; English abstract.

Sockeye Salmon - Juvenile / Japan / Lake / Non Migratory Movements, Diel Timing

1471

Shparkovskiy, I.A., I.D. Pavlov, N.V. Troshicheva, and D.V. Klets. 1981.
Response of pink salmon, *Oncorhynchus gorbuscha*, and Atlantic salmon, *Salmo salar*, to amino acids during spawning migration. -- J. Ichthyol. 21(6):135-140.

Pink Salmon, Atlantic Salmon - Mature / Olfactory System - Physiological and Biochemical Aspects / Direction Finding (General) - Olfactory System / Laboratory Study

1472

Sibert, J. 1975.
Residence of juvenile salmonids in the Nanaimo River estuary. -- Fish. Mar. Serv. (Can.) Tech. Rep. 537:23p.

Chinook Salmon - Immature / Southern British Columbia / Estuary / Pattern

1473

Sibert, J., and J. Schnute. 1982.
Analysis of the Alberni Inlet chinook salmon production system. -- Can. Tech. Rep. Fish. Aquat. Sci. 1131:149p.

Chinook Salmon - Mature / Southern British Columbia / Estuary, River / Initiation of Stream Entry, Seasonal Timing - Water Level and Flow Rate / Modelling

1474

Simms, S.E., and P.A. Larkin. 1977.
Simulation of dispersal of sockeye salmon (*Oncorhynchus nerka*) underyearlings in Babine Lake. -- J. Fish. Res. Board Can. 34(9):1379-1388.

Sockeye Salmon - Fry, Fingerling / Northern British Columbia / Lake / Non Migratory Movements / Modelling

1475

Simpson, K., and C. Groot. 1972.
Programs for analysis of orientation data. -- Fish. Res. Board Can. Tech. Rep. 312:61p.

Salmon (General) / Orientation

1476

Simpson, K.S. 1979.
Orientation differences between populations of juvenile

sockeye salmon. -- Fish. Mar. Serv. (Can.) Tech. Rep. 717:114p.

Sockeye Salmon - Juvenile / Lake / Orientation - Time of Year, Time of Day / Laboratory Study

1477

Sims, C.W. 1970.
Emigration of juvenile salmon and trout from Brownlee Reservoir, 1963-65. -- Fish. Bull. 68(2):245-259.

Sockeye Salmon, Chinook Salmon - Juvenile / Oregon, Colorado, Idaho / Reservoir or Impoundment / Seasonal Timing / Count

1478

Sims, C.W. 1979.
Effects of dam operations and flow regulation on juvenile salmon and steelhead migrations in the Snake and Columbia Rivers. -- U.S. Army Corps Eng. North Pac. Div. Fish. Eng. Res. Program Prog. Rep. 5:365-380.

Chinook Salmon, Steelhead Trout - Smolt, Fingerling / Washington, Oregon / River, Artificial Obstruction, Reservoir or Impoundment / Speed of Migration - Water Level and Flow Rate, Reservoirs and Impoundments / Seasonal Timing, Diel Timing / Count

1479

Skeesick, D.G. 1970.
The fall immigration of juvenile coho salmon into a small tributary. -- Res. Rep. Fish Comm. Oreg. 2(1):90-95.

Coho Salmon - Smolt, Fingerling / Oregon / Tributary / Direction, Seasonal Timing, Migration (General) / Count

1480

Skud, B.E. 1958.
Relation of adult salmon size to time of migration and freshwater survival. -- Copeia 1958:170-176.

Pink Salmon - Mature / River, Inshore / Seasonal Timing - Size and Growth

1481

Slater, D.W. 1963.
Winter-run chinook salmon in the Sacramento River, California with notes on water temperature requirements at

spawning. -- U.S. Fish Wildl. Serv. Spec. Sci. Rep. Fish. 461:9p.

Chinook Salmon - Mature, Juvenile / California / River / Seasonal Timing

1482

Slatick, E., L.G. Gilbreath, and J.R. Harmon. 1982.
Imprinting steelhead for homing. Pp.247-264 *in* E.L. Brannon and E.O. Salo (ed.). Proceedings of the Salmon and Trout Migratory Behavior Symposium. -- School of Fisheries, University of Washington, Seattle, Washington.

Steelhead Trout - Juvenile, Mature / Imprinting and Learning / Homing

1483

Smedley, S.C. 1952.
Pink salmon in Prairie Creek, California. -- Calif. Fish Game 38(2):275.

Pink Salmon - Mature / California / Horizontal Distribution (Geographic)

1484

Smirnov, A.I. 1959.
The functional importance of the pre-spawning changes in the skin of salmon (as exemplified by the genus *Oncorhynchus*). -- Zool. Zh. 35(5):734-744 (Fish. Res. Board Can. Transl. Ser. 348).

Pacific Salmon (General) - Mature / Skeletal and Integumentary System - Morphological Aspects (Stage of Migration) / Respiratory System - Physiological and Biochemical Aspects (Stage of Migration)

1485

Smirnov, A.I. 1960.
The characteristics of the biology of reproduction and development of the coho, *Oncorhynchus kisutch* (Walbaum). -- Vestn. Mosk. Univ. Ser. 6 Biol. 1:9-19 (Fish. Res. Board Can. Transl. Ser. 287).

Coho Salmon - Mature / Eastern Kamchatka to Chuchuki Peninsula, Sea of Okhotsk / River / Seasonal Timing

1486

Smirnov, A.I. 1975.
The biology, reproduction, and development of the

Pacific salmon. -- Izdatel'stvo Moskovskogo Universiteta, Moskva, USSR. -- 335p. (Fish. Mar. Serv. (Can.) Transl. Ser. 3861).

Pacific Salmon (General) / Migration (General)

1487

Smirnov, A.I., and M.S. Kamyshnaya. 1965.
The biology of young pink salmon in relation to certain questions of their propogation and acclimatization. -- Zool. Zh. 44(12):1813-1824 (Fish. Res. Board Can. Transl. Ser. 782).

Pink Salmon - Fry / River / Diel Timing - Evolution / Seasonal Timing - Age, Influences (Miscellaneous) / Initiation of Downstream Migration - Light Intensity, Water Level and Flow Rate, Water Temperature

1488

Smirnov, Yu.A. 1971.
The salmon of lake Onega: biology, reproduction and utilization. -- Izdatel'stvo Nauka, Leningradskoe Otdelenie, Leningrad, USSR. -- 143p. (Fish. Res. Board Can. Transl. Ser. 2137).

Atlantic Salmon - Mature / Iceland and Northern Europe / Estuary, River / Initiation of Stream Entry - Weather, Current, Water Level and Flow Rate, Water Temperature / Seasonal Timing, Speed of Migration

1489

Smith, E.V. 1916.
Effects of light on young salmon. -- Puget Sound Mar. Stn. Bull. 1:89-107.

Not seen.

Chinook Salmon - Alevin / Behaviour - Light Intensity

1490

Smith, G.W., A.D. Hawkins, G.G. Urquhart, and W.M. Shearer. 1980.
The offshore movements of returning Atlantic salmon. -- Salmon Net 13:28-32.

Atlantic Salmon - Mature / Southern Europe / Route

1491

Smith, G.W., A.D. Hawkins, G.G. Urquhart, and W.M. Shearer. 1981.

Orientation and energetic efficiency in the offshore movements of returning Atlantic salmon, _Salmo_ _salar_ L. -- Scott. Fish. Res. Rep. 21:22p.

Atlantic Salmon - Mature / Southern Europe / Inshore / Direction, Pattern - Tide / Energetics, Orientation / Speed of Migration - Time of Day / Sonic or Radio Tracking

1492

Smith, H.D. 1964.
The segregation of red salmon in the escapements to the Kvichak River system, Alaska. -- U.S. Fish Wildl. Serv. Spec. Sci. Rep. Fish. 470:20p.

Sockeye Salmon - Mature / Western Alaska / Lake / Tributary / Route, Seasonal Timing / Tagging

1493

Smith, H.D. 1973.
Observations on the cestode _Eubothrium_ _salvelini_ in juvenile sockeye salmon (_Oncorhynchus_ _nerka_) at Babine Lake, British Columbia. -- J. Fish. Res. Board Can. 30(7):947-964.

Sockeye Salmon - Smolt / Northern British Columbia / Lake, River / Energetics / Parasites

1494

Smith, H.D., and F.P. Jordan. 1973.
Timing of Babine Lake sockeye salmon stocks in the north-coast commercial fishery as shown by several taggings at the Babine counting fence and rates of travel through Skeena and Babine Rivers. -- Fish. Res. Board Can. Tech. Rep. 418:31p.

Sockeye Salmon - Mature / Northern British Columbia / River, Tributary, Inshore / Seasonal Timing, Speed of Migration

1495

Smith, J.R. 1974.
Distribution of seaward-migrating chinook salmon and steelhead trout in the Snake River above Lower Monumental Dam. -- Mar. Fish. Rev. 36(8):42-45.

Chinook Salmon, Steelhead Trout - Juvenile / Washington / River, Reservoir or Impoundment / Vertical Distribution / Capture

1496

Smith, J.R., J.R. Pugh, and G.E. Monan. 1968.
Horizontal and vertical distribution of juvenile salmonids in upper Mayfield Reservoir, Washington. -- U.S. Fish Wildl. Serv. Spec. Sci. Rep. Fish. 566:11p.

Chinook Salmon, Coho Salmon, Steelhead Trout - Juvenile / Washington / Reservoir or Impoundment / Vertical Distribution, Direction / Capture

1497

Smith, J.R., and L.J. Weber. 1976.
The regulation of day-night changes in hydroxyindole-O-methyltransferase activity in the pineal gland of steelhead trout. -- Can. J. Zool. 54:1530-1534.

Steelhead Trout - Juvenile / Pineal System - Physiological and Biochemical Aspects / Migration (General)

1498

Smith, L.S. 1982.
Decreased swimming performance as a necessary component of the smolt migration in salmon in the Columbia River. -- Aquaculture 28(1/2):153-161.

Pacific Salmon (General) - Smolt / Speed of Migration, Behaviour, Voluntary Displacement / Locomotory System - Physiological and Biochemical Aspects

1499

Smith, M.W. 1941.
An investigation into the effect of lights upon the descent of salmon smolts through the fishway at Cowie Falls on the Mersey River, N.S. -- Fish. Res. Board Can. Manuscr. Rep. Biol. Stn. 247:10p.

Atlantic Salmon - Smolt / Guiding

1500

Smith, S.B. 1960.
A note on two stocks of steelhead trout (Salmo gairdneri) in Capilano River, British Columbia. -- J. Fish. Res. Board Can. 17(5):739-742.

Steelhead Trout - Mature / Southern British Columbia / River / Seasonal Timing - Genetic Aspects

1501

Snyder, J. 1966.
Effects of salinity on salmon fry. -- Fish. Res. Board Can. Manuscr. Rep. Ser. (Biol.) 899:4p.

Atlantic Salmon - Fry / Seawater Adaptation / Laboratory Study

1502

Snyder, J.O. 1921.
Three California marked salmon recovered. -- Calif. Fish Game 7(1):1-6.

Chinook Salmon - Adult / California / Inshore / Route / Marking

1503

Snyder, J.O. 1923.
A second report on the return of king salmon marked in 1919, in Klamath River. -- Calif. Fish Game 9(1):1-9.

Chinook Salmon - Adult / California / Inshore / Route / Marking

1504

Snyder, J.O. 1924.
A third report on the return of king salmon marked in 1919 in Klamath River. -- Calif. Fish Game 10(3):110-114.

Chinook Salmon - Adult / California / Inshore, River / Route, Homing / Marking

1505

Snyder, J.O. 1931.
Salmon of the Klamath River, California. -- Calif. Div. Fish Game Fish Bull. 34:130p.

Chinook Salmon - Juvenile, Adult, Mature / California / River, Inshore / Route, Homing / Initiation of Stream Entry - Tide / Seasonal Timing, Pattern / Skeletal and Integumentary System - Morphological Aspects (Stage of Migration) / Marking

1506

Snyder, J.O. 1933.
The steelhead migration in Shasta River. -- Calif. Fish Game 19(4):252-254.

Steelhead Trout - Mature / California / River / Seasonal Timing / Count

1507

Snyder, J.O., and E.C. Scofield. 1924.
An experiment relating to the homing instinct of king salmon. -- Calif. Fish Game 10(1):9-16.

Chinook Salmon - Adult / California / Homing / Marking

1508

Soin, S.G. 1953.
Pattern of development of summer chum, masu, and pink salmon. -- Tr. Sovesch. Ikhtiol. Kom. Akad. Nauk SSSR 4:144-155. (Pp.42-54 *in* Pacific salmon: selected articles from Soviet *periodicals*. -- Jerusalem: Israel Program for Scientific Translations. 1961.).

Masu Salmon, Pink Salmon, Chum Salmon - Mature / Sea of Okhotsk / River / Seasonal Timing / Skeletal and Integumentary System - Morphological Aspects (Stage of Migration) / Pattern

1509

Sokolova, M.M., and M.N. Maslova. 1974.
Influence of some endocrine factors on the ionoregulatory function of the kidney in the migrating red salmon (*Oncorhynchus nerka*). -- *Gen. Comp. Endocrinol. 22(3):381*.

Sockeye Salmon - Mature / River / Freshwater Adaptation / Osmoregulatory and Excretory System - Physiological and Biochemical Aspects / Endocrine System (General)

1510

Solomon, D.J. 1973.
Evidence for pheromone-influenced homing by migrating Atlantic salmon, *Salmo salar* (L.). -- Nature 244:231-232.

Atlantic Salmon - Mature / Estuary, River / Direction Finding (General) - Odours, Pheromones

1511

Solomon, D.J. 1978.
Migration of smolts of Atlantic salmon (*Salmo salar* L.) and sea trout (*Salmo trutta* L.) in a chalkstream. -- Environ. Biol. *Fish 3(2):223*-229.

Atlantic Salmon - Smolt / Southern Europe / River / Initiation of Downstream Migration, Seasonal Timing - Light Intensity, Water Temperature, Turbidity, Weather, Water Level and Flow Rate / Count

1512

Solomon, D.J. 1978.
Some observations on salmon smolt migration in a chalkstream. -- J. Fish Biol. 12(6):571-574.

Atlantic Salmon - Smolt / Southern Europe / River / Initiation of Downstream Migration, Diel Timing - Water Temperature, Influences (Miscellaneous) / Speed of Migration, Behaviour / Sonic or Radio Tracking, Count

1513

Solomon, D.J. 1982.
Smolt migration in Atlantic salmon (*Salmo salar* L.) and sea trout (*Salmo trutta* L.). Pp.196-203 *in* E.L. Brannon and E.O. Salo (ed.). Proceedings of the Salmon and Trout Migratory Behavior Symposium. -- School of Fisheries, University of Washington, Seattle, Washington.

Atlantic Salmon - Smolt / Southern Europe / River / Initiation of Downstream Migration - Water Temperature, Water Level and Flow Rate

1514

Sparrow, R.A.H. 1967.
Recovery of juvenile coho salmon tagged in 1965 in Cowichan Bay, British Columbia. -- Fish. Res. Board Can. Manuscr. Rep. Ser. 945:9p.

Coho Salmon - Immature / Southern British Columbia / Inshore / Route / Tagging

1515

Sparrow, R.A.H. 1968.
Recovery of juvenile coho salmon tagged in 1966 in Cowichan Bay, British Columbia. -- Fish. Res. Board Can. Manuscr. Rep. Ser. 960:16p.

Coho Salmon - Immature / Southern British Columbia / Inshore / Route / Tagging

1516

Specker, J.L. 1981.
Hormonal and osmoregulatory aspects of smoltification

in coho salmon, Oncorhynchus kisutch. -- Ph.D. thesis. -- Oregon State University, Corvallis, Oregon. -- 112p.

Coho Salmon - Smolt / Smoltification, Osmoregulatory and Excretory System - Physiological and Biochemical Aspects / Pituitary System / Thyroid System / Interrenal System

1517

Specker, J.L. 1982.
Interrenal function and smoltification. -- Aquaculture 28(1/2):59-66.

Salmon (General) - Smolt / Smoltification - Physiological and Biochemical Aspects / Interrenal System

1518

Specker, J.L., and C.B. Schreck. 1982.
Changes in plasma cortico-steroids during smoltification of coho salmon, Oncorhynchus kisutch. -- Gen. Comp. Endocrinol. 46(1):53-58.

Coho Salmon - Smolt / Smoltification - Physiological and Biochemical Aspects / Interrenal System / Thyroid System

1519

Speshilov, L.I. 1972.
The behavior of young salmon of various sizes under salinity gradient conditions. -- Tr. Vses. Nauchno-Issled. Inst. Morsk. Rybn. Khoz. Okeanogr. 90:76-86.

In Russian; English abstract.

Salmon (General), Steelhead Trout - Juvenile / Preference - Salinity / Laboratory Study

1520

Stabell, O.B. 1982.
Detection of natural odorants by Atlantic salmon parr using positive rheotaxis olfactometry. Pp.71-78 in E.L. Brannon and E.O. Salo (ed.). Proceedings of the Salmon and Trout Migratory Behavior Symposium. -- School of Fisheries, University of Washington, Seattle, Washington.

Atlantic Salmon - Fingerling / Taxis - Current (Odours) / Direction Finding (General) - Odours, Pheromones / Laboratory Study

1521

Stabell, O.B. 1982.
Homing of Atlantic salmon in relation to olfaction and genetics. Pp.238-246 in E.L. Brannon and E.O. Salo (ed.). Proceedings of the Salmon and Trout Migratory Behavior Symposium. -- School of Fisheries, University of Washington, Seattle, Washington.

Atlantic Salmon - Mature / Homing - Genetic Aspects / Direction Finding (General) - Odours

1522

Stabell, O.B., R. Selset, and K. Sletten. 1982.
A comparative chemical study on population specific odorants from Atlantic salmon. -- J. Chem. Ecol. 8:201-217.

Atlantic Salmon / Iceland and Northern Europe / Direction Finding (General) - Pheromones / Olfactory System - Physiological and Biochemical Aspects

1523

Stabler, D.F., R.G. White, R.R. Ringe, and T.C. Bjornn. 1979.
The effects of altered flow regimes, temperatures and river impoundment on adult steelhead trout and chinook salmon. -- U.S. Army Corps Eng. North Pac. Div. Fish. Eng. Res. Program Prog. Rep. 5:111-124.

Chinook Salmon, Steelhead Trout - Mature / Washington, Oregon, Colorado, Idaho / River, Artificial Obstruction, Reservoir or Impoundment / Termination of Migration, Initiation of Stream Entry - Water Temperature / Straying, Homing / Sonic or Radio Tracking, Tagging

1524

Stasko, A.B. 1971.
Review of field studies on fish orientation. -- Ann. N.Y. Acad. Sci. 188:12-29.

Salmon (General) / Direction Finding (General)

1525

Stasko, A.B. 1975.
Progress of migrating Atlantic salmon, (Salmo salar) along an estuary, observed by ultrasonic tracking. -- J. Fish Biol. 7:329-338.

Atlantic Salmon - Mature / Atlantic Canada and United States / Estuary / Direction Finding (General), Speed of Migration, Pattern - Tide, Current / Sonic or Radio Tracking

1526

Stasko, A.B., R.M. Horrall, and A.D. Hasler. 1976.
Coastal movements of adult Fraser River sockeye salmon (Oncorhynchus nerka) observed by ultrasonic tracking. -- Trans. Am. Fish. Soc. 105(1):64-71.

Sockeye Salmon - Mature / Southern British Columbia, Washington / Inshore / Speed of Migration, Behaviour, Reverse Migration, Vertical Distribution / Route, Direction - Current, Landmarks, Weather, Light Intensity / Orientation - Electric Fields, Influences (Miscellaneous) / Sonic or Radio Tracking

1527

Stasko, A.B., R.M. Horrall, A.D. Hasler, and D. Stasko. 1973.
Coastal movements of mature Fraser River pink salmon (Oncorhynchus gorbuscha) as revealed by ultrasonic tracking. -- J. Fish. Res. Board Can. 30(9):1309-1316.

Pink Salmon - Mature / Washington / Inshore / Speed of Migration, Behaviour, Orientation, Pattern, Route / Direction Finding (General) - Electric Fields, Current / Sonic or Radio Tracking

1528

Stasko, A.B., and D.G. Pincock. 1977.
Review of underwater telemetry, with emphasis on ultrasonic techniques. -- J. Fish. Res. Board Can. 34(9):1261-1285.

Salmon (General) / Sonic or Radio Tracking

1529

Stasko, A.B., and S.A. Rommel. 1977.
Ultrasonic tracking of Atlantic salmon and eels. -- Rapp. P.-V. Reun. Cons. Perm. Int. Explor. Mer 170:36-40.

Atlantic Salmon / Sonic or Radio Tracking

1530

Stasko, A.B., A.M. Sutterlin, S.A. Rommel, and P.F. Elson. 1973.

Migration - orientation of Atlantic salmon, Salmo salar L. -- Int. Atlantic Salmon Found. Spec. Publ. Ser. 4(1):119-137.

Atlantic Salmon - Smolt, Adult, Mature / Inshore, Open Ocean, Estuary, River / Direction Finding (General) - Gravity, Current, Magnetic Field, Electric Fields, Odours, Pheromones / Homing, Straying / Behaviour, Speed of Migration

1531

Stevens, D.G., A.V. Nebeker, and R.J. Baker. 1980.
Avoidance responses of salmon and trout to air-supersaturated water. -- Trans. Am. Fish. Soc. 109(6):751-754.

Coho Salmon, Sockeye Salmon, Chinook Salmon, Steelhead Trout - Juvenile / Preference - Dissolved Gas Concentration / Laboratory Study

1532

Stevenson, J.C. 1951.
Marking and recovery as a means of studying the movements of fish. -- Fish. Res. Board Can. Manuscr. Rep. Biol. Stn. 410:19p.

Salmon (General) / Tagging, Marking

1533

Stewart, D.M. 1967.
1966 Bristol Bay red salmon smolt studies. -- Alaska Dep. Fish Game Inf. Leafl. 102:52p.

Sockeye Salmon - Smolt / Western Alaska / River, Lake / Seasonal Timing / Count

1534

Stewart, D.M. 1969.
1967 Bristol Bay red salmon smolt studies. -- Alaska Dep. Fish Game Inf. Leafl. 134:69p.

Sockeye Salmon - Smolt / Western Alaska / River, Lake / Initiation of Downstream Migration, Seasonal Timing - Water Temperature, Influences (Miscellaneous)

1535

Stewart, L. 1980.
A history of migratory salmon acclimatization experiments in parts of the southern hemisphere and the

possible effects of oceanic currents and gyres upon their outcome. -- Adv. Mar. Biol. 17:397-466.

Salmon (General) / Route - Current / Migration (General)

1536

Strange, R.J., and C.B. Schreck. 1980.
Seawater and confinement alters survival and cortisol concentration in juvenile chinook salmon. -- Copeia 1980:351-353.

Chinook Salmon - Juvenile / Seawater Adaptation, Osmoregulatory and Excretory System - Physiological and Biochemical Aspects / Interrenal System / Laboratory Study

1537

Straty, R.R. 1969.
The migratory pattern of adult sockeye salmon (*Oncorhynchus nerka*) in Bristol Bay as related to the distribution of their home-river waters. -- Ph.D. thesis. -- Oregon State University, Corvallis, Oregon. -- 262p.

Sockeye Salmon - Mature / Western Alaska / Inshore, Open Ocean / Route, Pattern / Migration (General)

1538

Straty, R.R. 1974.
Ecology and behavior of juvenile sockeye salmon (*Oncorhynchus nerka*) in Bristol Bay and the eastern Bering Sea. Pp.285-319 *in* D.W. Hood and E.J. Kelley (ed.). Oceanography of the Bering Sea with emphasis on renewable resources. -- Univ. Alaska Inst. Mar. Sci. Occas. Publ. 2.

Sockeye Salmon - Immature / Western Alaska / Inshore / Route - Water Temperature / Pattern, Seasonal Timing, Vertical Distribution, Schooling / Direction Finding (General) - Salinity / Speed of Migration - Food Availability

1539

Straty, R.R., and H.W. Jaenicke. 1980.
Estuarine influence of salinity, temperature, and food on the behavior, growth, and dynamics of Bristol Bay sockeye salmon. Pp.247-265 *in* W.J. McNeil and D.C. Himsworth (ed.). Salmonid ecosystems of the North Pacific. -- Oregon State University Press, Corvallis, Oregon.

Sockeye Salmon - Immature / Western Alaska / Inshore / Direction Finding (General) - Salinity / Route - Water

Temperature / Speed of Migration - Food Availability, Water Temperature

1540

Struthers, G. 1975.
Rapid movement of a salmon tagged off the Faroes. -- Scott. Fish. Bull. 41:22.

Atlantic Salmon - Adult / Southern Europe / Inshore / Speed of Migration / Tagging

1541

Stuart, T.A. 1962.
The leaping behaviour of salmon and trout at falls and obstructions. -- Scotl. Dep. Agric. Fish. Freshwater Salmon Fish. Res. 28:46p.

Atlantic Salmon - Juvenile, Mature / Behaviour - Current, Obstruction

1542

Stuart, T.A. 1964.
Biophysical aspects of leaping behaviour in salmon and trout. -- Ann. Appl. Biol. 53:503-505.

Salmon (General) - Adult / Behaviour

1543

Sugano, S. 1936.
Immigration of salmons to a fishing ground on the west coast of Kamchatka in relation to hydrographical conditions. -- Bull. Jap. Soc. Sci. Fish. 4(6):407-408.

In Japanese; English abstract.

Pacific Salmon (General) / Sea of Okhotsk / Inshore / Migration (General)

1544

Sugano, S. 1936.
The depth and distance from shore of the routes of migration of salmon. -- Bull. Jap. Soc. Sci. Fish. 4(5):318-320.

In Japanese; English abstract.

Pink Salmon, Chum Salmon, Sockeye Salmon - Adult / Sea of Okhotsk / Inshore / Direction - Time of Year / Pattern, Vertical Distribution / Capture

1545

Sugiwaka, K., H. Tanaka, N. Kasahara, and K. Araya. 1981.
Smolt run in the sea by tagging experiment of pond-reared smolt of masu salmon (*Oncorhynchus masou*). -- Sci. Rep. Hokkaido Fish Hatchery 36:11-31.

In Japanese; English abstract.

Masu Salmon - Immature / Japan / Inshore / Route - Water Temperature, Current / Tagging

1546

Sullivan, C.M. 1954.
Temperature reception and responses in fish. -- J. Fish. Res. Board Can. 11(2):153-170.

Salmon (General) / Migration (General) - Water Temperature

1547

Sumner, F.H. 1952.
Migration of salmonids in Sand Creek, Oregon. -- Trans. Am. Fish. Soc. 82:139-150.

Chum Salmon, Coho Salmon, Steelhead Trout - Mature, Fry / Oregon / River, Tributary / Seasonal Timing / Count

1548

Sutherland, D.F. 1973.
Distribution, seasonal abundance, and some biological features of steelhead trout, *Salmo gairdneri* in the North Pacific Ocean. -- Fish. Bull. 71(3):787-826.

Steelhead Trout - Immature, Mature / Eastern Pacific Ocean, Western Pacific Ocean, Central Pacific Ocean, Bering Sea / Open Ocean / Horizontal Distribution (Geographic) - Water Temperature / Seasonal Timing, Route, Speed of Migration / Tagging, Capture

1549

Sutterlin, A.M., and R. Gray. 1973.
Chemical basis for homing of Atlantic salmon (*Salmo salar*) to a hatchery. -- J. Fish. Res. Board Can. 30(7):985-989.

Atlantic Salmon - Mature / Atlantic Canada and United States / River / Direction Finding (General) - Odours / Homing

1550

Sutterlin, A.M., K.J. Jokola, and B. Holte. 1979.
Swimming behavior of salmonid fish in ocean pens. -- J. Fish. Res. Board Can. 36(8):948-954.

Atlantic Salmon - Adult / Behaviour, Direction Finding (General) / Laboratory Study

1551

Sutterlin, A.M., R.L. Saunders, E.B. Henderson, and P.R. Harmon. 1982.
The homing of Atlantic salmon (*Salmo salar*) to a marine site. -- Can. Tech. Rep. Fish. Aquat. Sci. 1058:6p.

Atlantic Salmon - Smolt, Mature / Atlantic Canada and United States / Inshore / Homing / Imprinting and Learning / Tagging, Marking

1552

Suzuki, T. 1970.
Swimming behavior of chum salmon in the southeastern area off Kamchatka Peninsula. -- Bull. Jap. Soc. Sci. Fish. 36(1):19-25.

In Japanese; English abstract.

Chum Salmon - Adult / Eastern Kamchatka to Chuchuki Peninsula / Inshore, Open Ocean / Direction - Time of Day / Capture

1553

Suzuki, T., and H. Sonoda. 1972.
On the schooling of salmon in the North Pacific Ocean observed by salmon fish finder. -- Bull. Fac. Fish. Hokkaido Univ. 23(2):77-81.

In Japanese; English abstract.

Pacific Salmon (General) - Adult / Pacific Ocean (General) / Open Ocean / Schooling / Hydroacoustics

1554

Svard, P.O. 1958.
Acid-soluble nucleotides from the blood of metamorphosing salmon. -- Nature 182:1448-1449.

Atlantic Salmon - Smolt / Smoltification - Morphological Aspects, Physiological and Biochemical Aspects / Laboratory Study

1555

Swain, A. 1963.
Long-distance migration of salmon. -- Nature 197:923.

Atlantic Salmon - Immature / Southern Europe, Greenland / Route / Tagging

1556

Swain, A. 1982.
The migrations of salmon, Salmo salar, from 3 rivers entering the Severn estuary, England. -- J. Cons. Cons. Int. Explor. Mer 40(1):76-80.

Atlantic Salmon - Immature, Mature / Southern Europe, Greenland / Inshore, Open Ocean / Route, Straying / Tagging

1557

Swain, A., and P.E. Caradine. 1960.
An international tagging test with salmon (Salmo salar L.) smolts. -- Nature 185:206-207.

Atlantic Salmon / Iceland and Northern Europe, Southern Europe / Tagging

1558

Swain, A., W.G. Hartley, and R.B. Davies. 1962.
Long-distance migration of salmon. -- Nature 195:1122.

Atlantic Salmon - Immature / Atlantic Canada and United States, Southern Europe, Greenland / Route / Tagging

1559

Swartzell, P.G. 1967.
Two king salmon with spawning features taken in ocean troll fishery. -- Calif. Fish Game 53(3):174-179.

Chinook Salmon - Mature / California / Inshore / Migration (General)

1560

Symons, P.E.K. 1970.
The possible role of social and territorial behaviour of Atlantic salmon parr in the production of smolts. -- Fish. Res. Board Can. Tech. Rep. 206:25p.

Atlantic Salmon - Fingerling, Smolt / Atlantic Canada and United States / River / Smoltification - Size and growth, Aggressive Behaviour and Territoriality, Age

1561

Symons, P.E.K. 1978.
Leaping behavior of juvenile coho (Oncorhynchus kisutch), and Atlantic salmon (Salmo salar). -- J. Fish. Res. Board Can. 35(6):907-909.

Coho Salmon, Atlantic Salmon - Juvenile / Behaviour

1562

Taft, A.C. 1934.
California steelhead experiments. -- Trans. Am. Fish. Soc. 64:248-251.

Steelhead Trout / Migration (General)

1563

Taft, A.C. 1937.
Marked silver salmon from Waddell Creek caught near Fort Bragg. -- Calif. Fish Game 23(2):177-178.

Coho Salmon - Adult / California / Inshore / Route / Marking

1564

Taft, A.C. 1938.
Pink salmon in California. -- Calif. Fish Game 24(2):197-198.

Pink Salmon - Mature / California / Horizontal Distribution (Geographic)

1565

Taft, A.C., and L. Shapovalov. 1938.
Homing instinct and straying among steelhead trout, (Salmo gairdnerii) and silver salmon (Oncorhynchus kisutch). -- Calif. Fish Game 24(2):118-125.

Steelhead Trout, Coho Salmon - Mature / California / River / Reverse Migration / Homing, Straying / Marking, Tagging

1566

Taguchi, K. 1957.
The seasonal variation of the good fishing area of

salmon and the movements of the water masses in the waters of the western North Pacific: II. The distribution and migration of salmon population in offshore waters. -- Bull. Jap. Soc. Sci. Fish. 22(9):515-521.

In Japanese; English abstract.

Chum Salmon, Sockeye Salmon, Pink Salmon, Coho Salmon - Adult / Eastern Kamchatka to Chuchuki Peninsula, Western Pacific Ocean / Inshore, Open Ocean / Seasonal Timing / Route - Current / Capture

1567

Taguchi, K. 1957.
The seasonal variation of the good fishing area of salmon and the movements of water masses in the waters of western North Pacific: III. Relation between the distribution of salmon population and oceanographical condition mainly in the southern waters of 48 degrees N. lat. -- Bull. Jap. Soc. Sci. Fish. 22(10):609-617.

In Japanese; English abstract.

Pink Salmon, Sockeye Salmon, Chum Salmon, Coho Salmon - Adult / Central Pacific Ocean, Western Pacific Ocean / Open Ocean / Horizontal Distribution (Geographic) - Water Temperature, Current / Capture

1568

Taguchi, K., and Y. Hirose. 1954.
Surface currents and oceanographical condition in the northern Pacific salmon fishing ground. -- Bull. Jap. Soc. Sci. Fish. 20(7):576-580.

In Japanese; English abstract.

Pacific Salmon (General) / Eastern Kamchatka to Chuchuki Peninsula, Western Pacific Ocean / Open Ocean / Route - Current

1569

Taguchi, K., and K. Nishikawa. 1954.
Some knowledges on the migration of salmon in Asiatic region inferred from data of the past: I. Red salmon (Oncorhynchus nerka). -- Bull. Jap. Soc. Sci. Fish. 20(7):581-585.

In Japanese; English abstract.

Sockeye Salmon - Adult / Eastern Kamchatka to Chuchuki Peninsula, Sea of Okhotsk / Inshore, Open Ocean / Direction, Route, Speed of Migration / Capture

1570

Taguchi, K., and K. Nishikawa. 1954.
Some knowledges on the migration of salmon in Asiatic region inferred from data of the past: II. Chum salmon (Oncorhynchus keta). -- Bull. Jap. Soc. Sci. Fish. 20(7):586-590.

In Japanese; English abstract.

Chum Salmon - Adult / Bering Sea, Eastern Kamchatka to Chuchuki Peninsula, Western Pacific Ocean, Sea of Okhotsk / Inshore, Open Ocean / Route, Direction, Speed of Migration / Capture, Tagging

1571

Tait, H.D., and J.B. Kirkwood. 1962.
Estimating abundance of pink and chum salmon fry in Prince William Sound, 1957. -- U.S. Fish Wildl. Serv. Spec. Sci. Rep. Fish. 429:21p.

Pink Salmon, Chum Salmon - Fry / Central Alaska / River / Seasonal Timing / Count

1572

Takagi, K. 1967.
Distribution of salmon near the northwestern North Pacific in April and May. -- Bull. Hokkaido Reg. Fish. Res. Lab. 33:72-84.

In Japanese; English abstract.

Sockeye Salmon, Chum Salmon, Pink Salmon, Coho Salmon - Immature, Mature / Western Pacific Ocean / Open Ocean / Horizontal Distribution (Geographic) - Size and Growth, Water Temperature / Capture

1573

Takagi, K., K.V. Aro, A.C. Hartt, and M.B. Dell. 1981.
Distribution and origin of pink salmon (Oncorhynchus gorbuscha) in offshore waters of the North Pacific Ocean. -- Int. North Pac. Fish. Comm. Bull. 40:195p.

Pink Salmon - Immature, Mature / Pacific Ocean (General) / Open Ocean, River, Inshore / Horizontal Distribution (Geographic) - Food Availability, Water Temperature, Salinity, Current / Seasonal Timing, Vertical

Movement, Route, Vertical Distribution / Capture, Tagging / Stock Identification - Scale Analysis, Morphometrics and Meristics, Electrophoresis and Serology

1574

Takagi, K., and H.D. Smith. 1973.
Timing and rate of migration of Babine sockeye salmon stocks through the Skeena and Babine Rivers. -- Fish. Res. Board Can. Tech. Rep.419:61p.

Sockeye Salmon - Mature / Northern British Columbia / River, Tributary / Seasonal Timing / Speed of Migration - Time of Year / Tagging, Count

1575

Takahashi, H., H. Kenko, and T. Ishisugi. 1976.
Biochemical studies of salmon and trout: I. Chemical composition of salmon (*Oncorhynchus keta*) during the spawning migration. -- *Hokusuishi Geppo* Mon. Rep. Hokkaido Fish. Exp. Stn.33(12):1-6 (Fish. Mar. Serv. (Can.) Transl. Ser. 4241).

Chum Salmon - Mature / River / Energetics / Digestive System - Physiological and Biochemical Aspects (Stage of Migration)

1576

Talbot, G.B. 1950.
A biological study of the effectiveness of the Hell's Gate fishways. -- Int. Pac. Salmon Fish. Comm. Bull. 3:3-80.

Sockeye Salmon - Mature / Southern British Columbia / River, Natural Obstruction / Seasonal Timing / Speed of Migration - Obstruction / Tagging

1577

Tanaka, M. 1972.
Studies on the effective stocking of salmonid fish: III. Downstream emigration of Himemasu, *Oncorhynchus nerka*, from lake Yunoko and its factors involved. -- Bull. Freshwater Fish. Res. Lab. Tokyo 22(1):13-24.

In Japanese; English abstract.

Sockeye Salmon - Smolt / Japan / River / Seasonal Timing

1578

Tanaka, S. 1965.
Salmon of the North Pacific Ocean: Part IX. Coho, chinook and masu salmon in offshore waters. 3. A review of the biological information on masu salmon (Oncorhynchus masou). -- Int. North Pac. Fish. Comm. Bull. 16:75-135.

Masu Salmon - Immature, Mature / Sea of Japan, Sea of Okhotsk, Japan / Inshore, Open Ocean / Horizontal Distribution (Geographic), Seasonal Timing, Route - Water Temperature / Capture / Stock Identification - Scale Analysis, Morphometrics and Meristics

1579

Tanaka, S., M.P. Shepard, and H.T. Bilton. 1960.
Scale characteristics of chum salmon (Oncorhynchus keta) in coastal areas and on high seas of the North Pacific Ocean. -- Fish. Res. Board Can. Manuscr. Rep. Ser. (Biol.) 704:27p.

Chum Salmon - Adult / Pacific Ocean (General) / Open Ocean / Route / Stock Identification - Scale Analysis

1580

Tanaka, S., M.P. Shepard, and H.T. Bilton. 1969.
Origin of chum salmon (Oncorhynchus keta) in offshore waters of the North Pacific in 1956-1958 as determined from scale studies. -- Int. North Pac. Fish. Comm. Bull. 26:57-155.

Chum Salmon - Immature, Mature / Pacific Ocean (General) / Open Ocean / Route / Stock Identification - Scale Analysis

1581

Tarrant, R.M. 1964.
Rate of extinction of a conditioned response in juvenile sockeye salmon. -- Trans. Am. Fish. Soc. 93(4):399-401.

Sockeye Salmon - Juvenile / Imprinting and Learning / Laboratory Study

1582

Tarrant, R.M. 1966.
Threshold of perception of eugenol in juvenile sockeye salmon. -- Trans. Am. Fish. Soc. 95(1):112-115.

Sockeye Salmon - Juvenile / Olfactory System - Physiological and Biochemical Aspects / Laboratory Study

1583

Tchernavin, V. 1938.
The absorption of bones in the skull of the salmon during their migration to rivers. -- Fish. Board Scotl. Salmon Fish. 1938(6):4p.

Atlantic Salmon - Mature / Southern Europe / River / Skeletal and Integumentary System - Morphological Aspects (Stage of Migration)

1584

Templeman, W. 1967.
Atlantic salmon from the Labrador Sea off west Greenland taken during A.T. Cameron cruise, July-August 1965. -- Int. Comm. Northwest Atl. Fish. Redbook 4:5-40.

Atlantic Salmon - Immature, Mature / Atlantic Canada and United States, Greenland, Western North Atlantic / Open Ocean / Vertical Distribution / Horizontal Distribution (Geographic), Route - Current, Water Temperature / Capture

1585

Templeman, W. 1968.
Distribution and characteristics of Atlantic salmon over oceanic depths and on the bank and shelf slope areas off Newfoundland, March - May, 1966. -- Int. Comm. Northwest Atl. Fish. Res. Bull. 5:62-85.

Atlantic Salmon - Adult / Western North Atlantic, Atlantic Canada and United States / Open Ocean / Horizontal Distribution (Geographic) - Water Temperature / Vertical Distribution, Route / Capture

1586

Tesch, F.W. 1975.
Orientation in space: animals; fishes. Pp.657-707 in O. Kinne (ed.). Marine ecology: a comprehensive treatise on life in oceans and coastal waters. Vol.2, Part 2. Physiological mechanisms. -- John Wiley and Sons, New York, New York.

Salmon (General) / Direction Finding (General)

1587

Tetsuo, O. 1964.
A few notes on migration groups by analysis of scale

pattern on the pink salmon, *Oncorhynchus gorbuscha*. -- Bull. Jap. Sea Reg. Fish. Res. Lab. 13:15-24.

In Japanese; English abstract.

Pink Salmon - Adult / Sea of Japan, Sea of Okhotsk, Eastern Pacific Ocean / Open Ocean / Route / Stock Identification - Scale Analysis

1588

Thomas, A.E. 1975.
Migration of chinook salmon fry from simulated incubation channels in relation to water temperature, flow and turbidity. -- Prog. Fish Cult. 37(4):219-223.

Chinook Salmon, Chum Salmon - Fry / Initiation of Downstream Migration - Weather, Turbidity, Water Temperature

1589

Thomas, A.E., J.L. Banks, and D.C. Greenland. 1969.
Effect of yolk sac absorption on the swimming ability of fall chinook salmon. -- Trans. Am. Fish. Soc. 98(3):406-410.

Chinook Salmon - Fry / Initiation of Downstream Migration - Locomotory System / Voluntary Displacement

1590

Thompson, C.S. 1970.
Effect of flow on performance and behavior of chinook salmon in fishways. -- U.S. Fish Wildl. Serv. Spec. Sci. Rep. Fish. 601:11p.

Chinook Salmon - Mature / Artificial Obstruction / Behaviour

1591

Thompson, S.H. 1930.
Salmon tagging experiments in Alaska, 1929. -- Bull. Bur. Fish. (U.S.) 46:177-195.

Pink Salmon, Sockeye Salmon, Chum Salmon, Coho Salmon - Mature / Central Alaska / Inshore / Route / Tagging

1592

Thompson, W.F. 1945.
Effect of the obstruction at Hell's Gate on the sockeye salmon of the Fraser River. -- Int. Pac. Salmon Fish. Comm. Bull. 1:175p.

Sockeye Salmon - Mature / Southern British Columbia / River, Natural Obstruction / Migration (General) - Obstruction

1593

Thorpe, J.E. 1982.
Migration in salmonids, with special reference to juvenile movements in freshwater. Pp.86-97 in E.L. Brannon and E.O. Salo (ed.). Proceedings of the Salmon and Trout Migratory Behavior Symposium. -- School of Fisheries, University of Washington, Seattle, Washington.

Salmon (General) - Juvenile / Migration (General)

1594

Thorpe, J.E., and R.I.G. Morgan. 1978.
Parental influence on growth rate, smolting rate and survival in hatchery reared juvenile Atlantic salmon, *Salmo salar*. -- J. Fish Biol. 13(5):549-556.

Atlantic Salmon - Smolt / Smoltification - Size and Growth, Genetic Aspects / Thyroid System

1595

Thorpe, J.E., and R.I.G. Morgan. 1978.
Periodicity in Atlantic salmon *Salmo salar* L. smolt migration. -- J. Fish Biol. 12(6):541-548.

Atlantic Salmon - Smolt / Taxis - Current / Initiation of Downstream Migration - Thyroid System, Locomotory System, Water Level and Flow Rate / Diel Timing - Time of Year, Water Temperature, Light Intensity / Behaviour, Voluntary Displacement

1596

Thorpe, J.E., L.G. Ross, G. Struthers, and W. Watts. 1981.
Tracking Atlantic salmon smolts, *Salmo salar* L., through Loch Voil, Scotland. -- J. Fish Biol. 19(5):519-537.

Atlantic Salmon - Smolt / Southern Europe / River / Speed of Migration - Current / Diel Timing, Voluntary Displacement, Pattern, Direction, Locomotory System / Sonic or Radio Tracking

1597

Thorsteinson, F.V., and T.R. Merrell. 1964.
Salmon tagging experiments along the south shore of Unimak Island and the southwestern shore of the Alaska

Peninsula. -- U.S. Fish Wildl. Serv. Spec. Sci. Rep. Fish. 486:15p.

Sockeye Salmon, Pink Salmon, Chum Salmon - Mature / Central Alaska, Western Alaska, Eastern Kamchatka to Chuchuki Peninsula / Inshore / Route, Speed of Migration / Tagging

1598

Thurow, F. 1966.
Contributions to the biology and study of the stock of the Atlantic salmon (Salmo salar L.) in the Baltic Sea. -- Ber. Dtsch. Wiss. Komm. Meeresforsch. 18(3/4):223-379 (Fish. Res. Board Can. Transl. Ser. 1211).

Atlantic Salmon - Immature, Mature / Iceland and Northern Europe / Inshore / Route, Horizontal Distribution (Geographic) - Weather, Current

1599

Thurow, F. 1968.
On food, behaviour and population mechanism of Baltic salmon. -- Swed. Salmon Res. Inst. Rep. Laxforskningsinstitutet Medd. 4/1968:16p.

Atlantic Salmon - Adult / Iceland and Northern Europe / Inshore / Route - Weather / Capture

1600

Todd, I.S. 1966.
A technique for the enumeration of chum salmon in the Fraser River, British Columbia. -- Can. Fish. Cult. 38:3-35.

Chum Salmon - Fry / Southern British Columbia / River / Vertical Distribution - Time of Day, Time of Year / Diel Timing - Time of Year / Pattern / Capture

1601

Tokui, T. 1970.
Studies on the kokanee salmon: (6). On the kokanee smolts (Oncorhynchus nerka) emigrated out of Lake Shikotsu in 1962. -- Sci. Rep. Hokkaido Salmon Hatchery 24:1-8.

In Japanese; English abstract.

Sockeye Salmon - Landlocked, Smolt / Japan / Lake, River / Seasonal Timing, Initiation of Downstream Migration - Water Temperature / Diel Timing / Count

1602

Toner, E.D. 1957.
Movements of salmon around Ireland: 7. From Rath, Co. Kerry (1950-1953). -- Proc. Roy. Ir. Acad. 58B:321-328.

Atlantic Salmon - Mature / Southern Europe / River / Route / Tagging

1603

Trefethen, P.S. 1955.
Exploratory experiments in guiding salmon fingerlings by a narrow D.C. electric field. -- U.S. Fish Wildl. Serv. Spec. Sci. Rep. Fish. 158:42p.

Coho Salmon - Juvenile / Guiding

1604

Triplett, E., and J.R. Calaprice. 1974.
Changes in plasma constituents during spawning migration of Pacific salmons. -- J. Fish. Res. Board Can. 31(1):11-14.

Chum Salmon, Pink Salmon - Mature / River, Lake / Circulatory System - Physiological and Biochemical Aspects (Stage of Migration) / Laboratory Study

1605

Tully, J.P., A.J. Dodimead, and S. Tabata. 1960.
An anomalous increase of temperature in the ocean off the Pacific coast of Canada through 1957 and 1958. -- J. Fish. Res. Board Can. 17(1):61-80.

Sockeye Salmon - Mature / Southern British Columbia / Inshore / Route - Water Temperature

1606

Turner, C.E., and K.V. Aro. 1968.
Atlas of salmon catches made by longlines in the eastern North Pacific Ocean. -- Fish. Res. Board Can. Manuscr. Rep. Ser. 983:15p.

Coho Salmon, Pink Salmon, Chinook Salmon, Sockeye Salmon, Chum Salmon, Steelhead Trout - Adult / Eastern Pacific Ocean / Open Ocean / Horizontal Distribution (Geographic) / Capture

1607

Turner, C.E., and L.W. Barner. 1967.
Results of a salmon longline fishing survey in the Gulf of Alaska, November 21 to December 7, 1966. -- Fish. Res. Board Can. Manuscr. Rep. Ser. 910:2p.

Chum Salmon, Pink Salmon, Sockeye Salmon - Adult / Eastern Pacific Ocean / Open Ocean / Horizontal Distribution (Geographic) / Capture

1608

Twomey, E., and A. O'Riordan. 1963.
Movements of salmon around Ireland. 9. From Ardmore, Co. Waterford (1958-1961). -- Proc. Roy. Ir. Acad. 63B:87-91.

Atlantic Salmon - Mature / Southern Europe / Inshore / Route, Speed of Migration / Tagging

1609

Tyler, R.W. 1964.
Distribution and migration of young salmon in Bellingham Bay, Washington. -- Univ. Wash. Fish. Res. Inst. Circ. 212:26p.

Chum Salmon, Chinook Salmon, Coho Salmon - Juvenile / Washington / Estuary / Seasonal Timing, Horizontal Distribution (Geographic) / Capture

1610

Tytler, P., J.E. Thorpe, and W.M. Shearer. 1978.
Ultrasonic tracking of the movements of Atlantic salmon smolts (*Salmo salar* L.) in the estuaries of two Scottish rivers. -- *J. Fish* Biol. 12(6):575-586.

Atlantic Salmon - Smolt / Southern Europe / River, Estuary / Pattern, Direction - Tide / Speed of Migration, Behaviour, Voluntary Displacement / Sonic or Radio Tracking

1611

Uda, M. 1962.
Subarctic oceanography in relation to whaling and salmon fisheries. -- Sci. Rep. Whales Res. Inst. Tokyo 16:105-119.

Pacific Salmon (General) - Adult / Pacific Ocean (General) / Horizontal Distribution (Geographic) - Water Temperature, Salinity

1612

Ueda, K., T.J. Hara, and A. Gorbman. 1967.
Electroencephalographic studies on olfactory discrimination in adult spawning salmon. -- Comp. Biochem. Physiol. 21:133-143.

Chinook Salmon, Coho Salmon - Mature / River, Tributary / Direction Finding (General) - Odours / Olfactory System - Physiological and Biochemical Aspects / Laboratory Study

1613

Ueda, K., T.J. Hara, M. Satou, and S. Kaji. 1971.
Electrophysiological studies of olfactory discrimination of natural waters by himē salmon, a landlocked Pacific salmon, Oncorhynchus nerka. -- J. Fac. Sci. Univ. Tokyo Sec. 4 Zool. 12:167-182.

Sockeye Salmon - Mature, Landlocked / Olfactory System - Physiological and Biochemical Aspects / Direction Finding (General) - Odours / Laboratory Study

1614

Umeda, K., K. Matsumura, G. Okukawa, R. Sazawa, H. Honma, M. Arauchi, K. Kasahara, and K. Nara. 1981.
On the coho salmon transplanted from North America into Ichani River. -- Sci. Rep. Hokkaido Salmon Hatchery 35:9-23.

In Japanese; English abstract.

Coho Salmon - Smolt / Japan / River / Seasonal Timing / Count

1615

United States. Army. Corps of Engineers. North Pacific Division. 1949.
Passage of fish at Bonneville Dam: annual report 1948. Portland, Oregon. -- 1v. (various pagings)

Chinook Salmon, Chum Salmon, Sockeye Salmon, Coho Salmon, Steelhead Trout - Mature / Washington, Oregon / River, Artificial Obstruction / Seasonal Timing - Water Level and Flow Rate / Diel Timing, Reverse Migration / Count

1616

United States. Army. Corps of Engineers. North Pacific Division. 1949.
Passage of fish over Bonneville Dam, Columbia River, Oregon and Washington: annual report 1949. Portland, Oregon. -- 1v. (various pagings)

Chinook Salmon, Chum Salmon, Sockeye Salmon, Coho Salmon, Steelhead Trout - Mature / Washington, Oregon / River, Artificial Obstruction / Seasonal Timing, Pattern / Count, Tagging

1617

United States. Army. Corps of Engineers. North Pacific Division. 1950.

Passage of fish over Bonneville Dam, Columbia River, Oregon and Washington: annual report 1950. Portland, Oregon. -- 1v. (various pagings)

Chinook Salmon, Chum Salmon, Coho Salmon, Sockeye Salmon, Steelhead Trout - Mature / Oregon, Washington / River, Artificial Obstruction / Seasonal Timing / Count

1618

United States. Army. Corps of Engineers. North Pacific Division. 1951.

Passage of fish over Bonneville Dam, Columbia River, Oregon and Washington: annual report 1951. Portland, Oregon. -- 1v. (various pagings)

Chinook Salmon, Chum Salmon, Coho Salmon, Sockeye Salmon, Steelhead Trout - Mature / Washington, Oregon / River, Artificial Obstruction / Seasonal Timing / Count

1619

United States. Army. Corps of Engineers. North Pacific Division. 1952.

Passage of fish over Bonneville Dam, Columbia River, Oregon and Washington: annual report 1952. Portland, Oregon. -- 1v. (various pagings)

Chinook Salmon, Chum Salmon, Sockeye Salmon, Coho Salmon, Steelhead Trout - Mature / Washington, Oregon / River, Artificial Obstruction / Seasonal Timing / Count

1620

United States. Army. Corps of Engineers. North Pacific Division. 1953.

Passage of fish over Bonneville Dam, Columbia River, Oregon and Washington: annual report 1953. Portland, Oregon. -- 1v. (various pagings)

Chinook Salmon, Sockeye Salmon, Coho Salmon, Chum Salmon, Steelhead Trout - Mature / Washington, Oregon / River, Artificial Obstruction / Seasonal Timing / Count

1621

United States. Army. Corps of Engineers. North Pacific Division. 1954.
Passage of fish over Bonneville and McNary Dams, Columbia River, Oregon and Washington: annual report 1954. Portland, Oregon. -- 1v. (various pagings)

Chinook Salmon, Sockeye Salmon, Coho Salmon, Chum Salmon, Steelhead Trout - Mature / Washington, Oregon / River, Artificial Obstruction / Seasonal Timing / Count

1622

United States. Army. Corps of Engineers. North Pacific Division. 1955.
Passage of fish over Bonneville and McNary Dams, Columbia River, Oregon and Washington: annual report 1955. Portland, Oregon. -- 1v. (various pagings)

Chinook Salmon, Sockeye Salmon, Coho Salmon, Chum Salmon, Steelhead Trout - Mature / Washington, Oregon / River, Artificial Obstruction / Seasonal Timing / Count

1623

United States. Army. Corps of Engineers. North Pacific Division. 1956.
Investigation of the rate of passage of salmon and steelhead trout through Bonneville Dam and the Dalles Dam site as compared to unobstructed sections of the Columbia River. -- U.S. Army Corps Eng. North Pac. Div. Fish. Eng. Res. Program Prog. Rep. 1:95-103.

Chinook Salmon, Steelhead Trout, Sockeye Salmon - Mature / Washington, Oregon / River, Artificial Obstruction / Speed of Migration - Obstruction / Tagging

1624

United States. Army. Corps of Engineers. North Pacific Division. 1956.
Investigations and field studies relating to numbers and seasonal occurence of migratory fish entering the Columbia River above Bonneville and the Snake River and their final distribution among principal tributaries thereto. -- U.S. Army Corps Eng. North Pac. Div. Fish. Eng. Res. Program Prog. Rep. 1:104-111.

Steelhead Trout - Mature / Washington, Oregon / River, Artificial Obstruction / Seasonal Timing, Pattern - Obstruction / Tagging

1625

United States. Army. Corps of Engineers. North Pacific Division. 1956.
Passage of fish over Bonneville and McNary Dams, Columbia River, Oregon and Washington: annual report 1956. Portland, Oregon. -- 1v. (various pagings)

Chinook Salmon, Chum Salmon, Sockeye Salmon, Coho Salmon, Steelhead Trout - Mature / Washington, Oregon / River, Artificial Obstruction / Seasonal Timing / Count

1626

United States. Army. Corps of Engineers. North Pacific Division. 1957.
Passage of fish over Bonneville and McNary Dams, Columbia River, Oregon and Washington: annual report 1957. Portland, Oregon. -- 1v. (various pagings)

Chinook Salmon, Coho Salmon, Chum Salmon, Sockeye Salmon, Steelhead Trout - Mature / Washington, Oregon / River, Artificial Obstruction / Seasonal Timing / Count

1627

United States. Army. Corps of Engineers. North Pacific Division. 1958.
Annual fish passage report, Bonneville, The Dalles and McNary Dams, Columbia River, Oregon and Washington, 1958. Portland, Oregon. -- 1v. (various pagings)

Chinook Salmon, Coho Salmon, Chum Salmon, Sockeye Salmon, Steelhead Trout - Mature / Oregon, Washington / River, Artificial Obstruction / Seasonal Timing / Count

1628

United States. Army. Corps of Engineers. North Pacific Division. 1959.
Annual fish passage report, Bonneville, The Dalles and McNary Dams, Columbia River, Oregon and Washington, 1959. Portland, Oregon. -- 1v. (various pagings)

Chinook Salmon, Coho Salmon, Chum Salmon, Sockeye Salmon, Steelhead Trout - Mature / Oregon, Washington / River, Artificial Obstruction / Seasonal Timing / Count

1629

United States. Army. Corps of Engineers. North Pacific Division. 1960.
Annual fish passage report, Bonneville, The Dalles and

McNary Dams, Columbia and Snake Rivers, Oregon and Washington, 1960. Portland, Oregon. -- 1v. (various pagings)

Chinook Salmon, Coho Salmon, Chum Salmon, Sockeye Salmon, Steelhead Trout - Mature / Oregon, Washington / River, Artificial Obstruction / Seasonal Timing / Count

1630

United States. Army. Corps of Engineers. North Pacific Division. 1961.
Annual fish passage report, Bonneville, The Dalles and McNary Dams, Columbia Rivers, Oregon and Washington, 1961. Portland, Oregon. -- 1v. (various pagings)

Chinook Salmon, Chum Salmon, Coho Salmon, Sockeye Salmon, Steelhead Trout - Mature / Oregon, Washington / Artificial Obstruction, River / Seasonal Timing / Count

1631

United States. Army. Corps of Engineers. North Pacific Division. 1962.
Annual fish passage report, Bonneville, The Dalles, McNary and Ice Harbor Dams, Columbia and Snake Rivers, Oregon and Washington, 1962. Portland, Oregon. -- 1v. (various pagings)

Chinook Salmon, Chum Salmon, Coho Salmon, Sockeye Salmon, Steelhead Trout - Mature / Oregon, Washington / Artificial Obstruction, River / Seasonal Timing / Count

1632

United States. Army. Corps of Engineers. North Pacific Division. 1963.
Annual fish passage report, Bonneville, The Dalles, McNary and Ice Harbor Dams, Columbia and Snake Rivers, Oregon and Washington, 1963. Portland, Oregon. -- 1v. (various pagings)

Chinook Salmon, Coho Salmon, Chum Salmon, Sockeye Salmon, Steelhead Trout - Mature / Washington, Oregon / Artificial Obstruction, River / Seasonal Timing / Count

1633

United States. Army. Corps of Engineers. North Pacific Division. 1964.
Annual fish passage report, Bonneville, The Dalles, McNary and Ice Harbor Dams, Columbia and Snake Rivers, Oregon and Washington, 1964. Portland, Oregon. -- 1v. (various pagings)

Chinook Salmon, Coho Salmon, Chum Salmon, Sockeye Salmon, Steelhead Trout - Mature / Washington, Oregon / Artificial Obstruction, River / Seasonal Timing / Count

1634

United States. Army. Corps of Engineers. North Pacific Division. 1965.
Annual fish passage report, Bonneville, The Dalles, McNary and Ice Harbor Dams, Columbia and Snake Rivers, Oregon and Washington, 1965. Portland, Oregon. -- 1v. (various pagings)

Chinook Salmon, Coho Salmon, Chum Salmon, Sockeye Salmon, Steelhead Trout - Mature / Washington, Oregon / Artificial Obstruction, River / Seasonal Timing / Count

1635

United States. Army. Corps of Engineers. North Pacific Division. 1967.
Annual fish passage report, Bonneville, The Dalles, McNary and Ice Harbor Dams, Columbia and Snake Rivers, Oregon and Washington, 1967. Portland, Oregon. -- 1v. (various pagings)

Chinook Salmon, Coho Salmon, Chum Salmon, Sockeye Salmon, Steelhead Trout - Mature / Washington, Oregon / Artificial Obstruction, River / Seasonal Timing / Count

1636

United States. Army. Corps of Engineers. North Pacific Division. 1968.
Annual fish passage report: Columbia River projects, Bonneville, The Dalles, John Day, McNary; Snake River projects, Ice Harbor; Oregon and Washington, 1968. Portland, Oregon. -- 1v. (various pagings)

Chinook Salmon, Coho Salmon, Chum Salmon, Sockeye Salmon, Steelhead Trout - Mature / Oregon, Washington / River, Artificial Obstruction / Seasonal Timing / Count

1637

United States. Army. Corps of Engineers. North Pacific Division. 1969.
Annual fish passage report: Columbia River projects, Bonneville, The Dalles, John Day, McNary; Snake River projects, Ice Harbor, Lower Monumental; Oregon and Washington, 1969. Portland, Oregon. -- 1v. (various pagings)

Chinook Salmon, Coho Salmon, Chum Salmon, Sockeye Salmon, Steelhead Trout - Mature / Oregon, Washington / River, Artificial Obstruction / Seasonal Timing / Count

1638

United States. Army. Corps of Engineers. North Pacific Division. 1970.

Annual fish passage report: Columbia River projects, Bonneville, The Dalles, John Day, McNary; Snake River projects, Ice Harbor, Lower Monumental, Little Goose; Oregon and Washington, 1970. Portland, Oregon. -- 1v. (various pagings)

Steelhead Trout, Sockeye Salmon, Coho Salmon, Chinook Salmon, Chum Salmon - Mature / Oregon, Washington / River, Artificial Obstruction / Seasonal Timing / Count

1639

United States. Army. Corps of Engineers. North Pacific Division. 1971.

Annual fish passage report: Columbia River projects, Bonneville, The Dalles, John Day, McNary; Snake River projects, Ice Harbor, Lower Monumental, Little Goose; Oregon and Washington, 1971. Portland, Oregon. -- 1v. (various pagings)

Steelhead Trout, Sockeye Salmon, Coho Salmon, Chinook Salmon, Chum Salmon - Mature / Oregon, Washington / River, Artificial Obstruction / Seasonal Timing / Count

1640

United States. Army. Corps of Engineers. North Pacific Division. 1972.

Annual fish passage report: Columbia River projects, Bonneville, The Dalles, John Day, McNary; Snake River projects, Ice Harbor, Lower Monumental, Little Goose; Oregon and Washington, 1972. Portland, Oregon. -- 1v. (various pagings)

Chinook Salmon, Coho Salmon, Chum Salmon, Sockeye Salmon, Steelhead Trout - Mature / Oregon, Washington / River, Artificial Obstruction / Seasonal Timing / Count

1641

United States. Army. Corps of Engineers. North Pacific Division. 1973.

Annual fish passage report: Columbia River projects, Bonneville, The Dalles, John Day, McNary; Snake River projects, Ice Harbor, Lower Monumental, Little Goose; Oregon and Washington, 1973. Portland, Oregon. -- 1v. (various pagings)

Coho Salmon, Chum Salmon, Chinook Salmon, Sockeye Salmon, Steelhead Trout - Mature / Oregon, Washington / River, Artificial Obstruction / Seasonal Timing / Count

1642

United States. Army. Corps of Engineers. North Pacific Division. 1974.
Annual fish passage report: Columbia River projects, Bonneville, The Dalles, John Day, McNary; Snake River projects, Ice Harbor, Lower Monumental, Little Goose; Oregon and Washington, 1974. Portland, Oregon. -- 1v. (various pagings)

Coho Salmon, Chum Salmon, Chinook Salmon, Sockeye Salmon, Steelhead Trout - Mature / Oregon, Washington / River, Artificial Obstruction / Seasonal Timing / Count

1643

United States. Army. Corps of Engineers. North Pacific Division. 1975.
Annual fish passage report: Columbia River projects, Bonneville, The Dalles, John Day, McNary; Snake River projects, Ice Harbor, Lower Monumental, Little Goose, Lower Granite; Oregon and Washington, 1975. Portland, Oregon. -- 1v. (various pagings)

Coho Salmon, Chum Salmon, Chinook Salmon, Sockeye Salmon, Steelhead Trout - Mature / Oregon, Washington / River, Artificial Obstruction / Seasonal Timing / Count

1644

United States. Army. Corps of Engineers. North Pacific Division. 1976.
Annual fish passage report: Columbia River projects, Bonneville, The Dalles, John Day, McNary; Snake River projects, Ice Harbor, Lower Monumental, Little Goose, Lower Granite; Oregon and Washington, 1976. Portland, Oregon. -- 1v. (various pagings)

Coho Salmon, Chum Salmon, Chinook Salmon, Sockeye Salmon, Steelhead Trout - Mature / Oregon, Washington / River, Artificial Obstruction / Seasonal Timing / Count

1645

United States. Army. Corps of Engineers. North Pacific Division. 1977.
Annual fish passage report: Columbia River projects, Bonneville, The Dalles, John Day, McNary; Snake River

projects, Ice Harbor, Lower Monumental, Little Goose, Lower Granite; Oregon and Washington, 1977. Portland, Oregon. -- 1v. (various pagings)

Coho Salmon, Chum Salmon, Chinook Salmon, Sockeye Salmon, Steelhead Trout - Mature / Oregon, Washington / River, Artificial Obstruction / Seasonal Timing / Count

1646

United States. Army. Corps of Engineers. North Pacific Division. 1978.
Annual fish passage report: Columbia River projects, Bonneville, The Dalles, John Day, McNary; Snake River projects, Ice Harbor, Lower Monumental, Little Goose, Lower Granite; Oregon and Washington, 1978. Portland, Oregon. -- 1v. (various pagings)

Coho Salmon, Chum Salmon, Chinook Salmon, Sockeye Salmon, Steelhead Trout - Mature / Oregon, Washington / River, Artificial Obstruction / Seasonal Timing / Count

1647

United States. Army. Corps of Engineers. North Pacific Division. 1979.
Annual fish passage report: Columbia River projects, Bonneville, The Dalles, John Day, McNary; Snake River projects, Ice Harbor, Lower Monumental, Little Goose, Lower Granite; Oregon and Washington, 1979. Portland, Oregon. -- 1v. (various pagings)

Coho Salmon, Chum Salmon, Chinook Salmon, Sockeye Salmon, Steelhead Trout - Mature / Oregon, Washington / River, Artificial Obstruction / Seasonal Timing / Count

1648

United States. Army. Corps of Engineers. North Pacific Division. 1980.
1980 annual fish passage report, Columbia and Snake Rivers for salmon, steelhead and shad: Bonneville, The Dalles, John Day, McNary, Ice Harbor, Lower Monumental, Little Goose, Lower Granite. Portland, Oregon. -- 1v. (various pagings)

Coho Salmon, Chum Salmon, Chinook Salmon, Sockeye Salmon, Steelhead Trout - Mature / Oregon, Washington / River, Artificial Obstruction / Seasonal Timing / Count

1649

United States. Army. Corps of Engineers. North Pacific Division. 1981.

1981 annual fish passage report, Columbia and Snake Rivers for salmon, steelhead and shad: Bonneville, The Dalles, John Day, McNary, Ice Harbor, Lower Monumental, Little Goose, Lower Granite. Portland, Oregon. -- 1v. (various pagings)

Coho Salmon, Chum Salmon, Chinook Salmon, Sockeye Salmon, Steelhead Trout - Mature / Oregon, Washington / River, Artificial Obstruction / Seasonal Timing / Count

1650

United States. Army. Corps of Engineers. North Pacific Division. 1982.

1982 annual fish passage report, Columbia and Snake Rivers for salmon, steelhead and shad: Bonneville, The Dalles, John Day, McNary, Ice Harbor, Lower Monumental, Little Goose, Lower Granite. Portland, Oregon. -- 1v. (various pagings)

Coho Salmon, Chum Salmon, Chinook Salmon, Sockeye Salmon, Steelhead Trout - Mature / Oregon, Washington / River, Artificial Obstruction / Seasonal Timing / Count

1651

Unwin, M.J. 1981.

Aspects of the juvenile quinnat salmon out migration from the Glenariffe Stream, New Zealand. -- Fish. Res. Div. Occas. Publ. (N.Z.) 30:15-20.

Not seen.

Chinook Salmon - Juvenile / New Zealand / River

1652

Uremovich, B. 1977.

Straying of fall chinook salmon from Elk River Hatchery into Sixes River, 1970-1976. -- Oreg. Dep. Fish Wildl. Inf. Rep. Ser. Fish. 77(6):7p.

Chinook Salmon - Mature / Oregon / Straying / Marking

1653

Van Alen, B.W. 1982.

Use of scale patterns to identify the origins of sockeye salmon (Oncorhynchus nerka) in the fishery of

Nushagak Bay, Alaska. -- Alaska Dep. Fish Game Inf. Leafl. 202:44p.

Sockeye Salmon / Western Alaska / Stock Identification - Scale Analysis

1654

Van Hyning, J.M. 1951.
The ocean salmon troll fishery of Oregon. -- Pac. Mar. Fish. Comm. Bull. 2:43-76.

Chinook Salmon, Coho Salmon - Mature, Immature / California, Oregon / Inshore / Route / Tagging

1655

Van Hyning, J.M. 1959.
Marked pink salmon. -- Res. Briefs Fish Comm. Oreg. 7(1):82.

Pink Salmon - Adult / Oregon / Inshore / Route / Marking

1656

Van Hyning, J.M. 1973.
Factors affecting the abundance of fall chinook salmon in the Columbia River. -- Res. Rep. Fish Comm. Oreg. 4(1):87p.

Chinook Salmon - Fry, Fingerling, Immature, Mature / Washington, Oregon / Inshore, River, Reservoir or Impoundment / Route / Seasonal Timing / Speed of Migration - Reservoirs and Impoundments, Current / Tagging, Marking

1657

Van Someren, V.D. 1937.
A preliminary investigation into the causes of scale absorption in salmon (Salmo salar, Linné). -- Fish. Board Scotl. Salmon Fish. 1937(2):12p.

Atlantic Salmon - Mature / River / Skeletal and Integumentary System - Morphological Aspects (Stage of Migration)

1658

Van Woert, W.F. 1955.
Time pattern of migration of salmon and steelhead into the upper Sacramento River during the 1954-1955 season. -- Calif. Dep. Fish Game Inland Fish. Admin. Rep. 55-17:3p.

Chinook Salmon, Steelhead Trout - Mature / California / River / Seasonal Timing

1659

Vanstone, W.E., and F.C. Ho. 1961.
Plasma proteins of coho salmon, Oncorhynchus kisutch, as separated by zone electrophoresis. -- J. Fish. Res. Board Can. 18(3):393-399.

Coho Salmon - Fingerling, Smolt, Mature / Circulatory System - Physiological and Biochemical Aspects (Stage of Migration) / Smoltification - Physiological and Biochemical Aspects / Electrophoresis and Serology

1660

Vanstone, W.E., and J.R. Markert. 1968.
Some morphological and biochemical changes in coho salmon, Oncorhynchus kisutch, during parr-smolt transformation. -- J. Fish. Res. Board Can. 25(11):2403-2418.

Coho Salmon - Fingerling, Smolt / Smoltification, Skeletal and Integumentary System, Organ Systems (General) - Morphological Aspects, Physiological and Biochemical Aspects / Smoltification - Size and Growth / Laboratory Study

1661

Vanstone, W.E., E. Roberts, and H. Tsuyuki. 1964.
Changes in the multiple hemoglobin patterns of some Pacific salmon, genus Oncorhynchus, during the parr-smolt transformation. -- Can. J. Physiol. Pharm. 42(6):697-703.

Coho Salmon, Sockeye Salmon - Juvenile, Adult / Respiratory System, Circulatory System - Physiological and Biochemical Aspects (Stage of Migration) / Smoltification, Seawater Adaptation / Laboratory Study

1662

Varanelli, C.C., and J.D. McCleave. 1974.
Locomotor activity of Atlantic salmon parr (Salmo salar L.) in various light conditions and in weak magnetic fields. -- Anim. Behav. 22(1):178-186.

Atlantic Salmon - Fingerling / Locomotory System, Behaviour - Light Intensity, Time of Day, Magnetic Field

1663

Vasilenko-Lukina, O.V. 1963.
On the biology of Primorsky pink salmon, Oncorhynchus gorbuscha, (Walbaum). -- Vopr. Ikhtiol. 2(4):604-608 (Univ. Wash. Fish. Res. Inst. Cir. 197:8p.).

Pink Salmon - Fry / Sea of Japan / River / Seasonal Timing, Initiation of Downstream Migration - Water Temperature

1664

Vaughan, E. 1947.
Time of appearance of pink salmon runs in south-eastern Alaska. -- Copeia 1947:40-50.

Pink Salmon - Mature / Southeastern Alaska / Inshore / Seasonal Timing / Capture

1665

Verhoeven, L.A., and E.B. Davidoff. 1962.
Marine tagging of Fraser River sockeye salmon. -- Int. Pac. Salmon Fish. Comm. Bull. 13:132p.

Sockeye Salmon - Mature / Southern British Columbia, Washington / Inshore, River, Estuary / Route, Reverse Migration, Speed of Migration, Seasonal Timing / Pattern - Weather / Tagging

1666

Vernidub, M.F., and N.N. Kolobova. 1971.
Seasonal changes in the thyroid gland and in the intensity of erythropoisis in young salmon, Salmo salar L., in the first year of life. -- Dokl. Acad. Sci. USSR Biol. Sci. Sect. 201:500-502.

Atlantic Salmon - Juvenile / Western Arctic Russia / Circulatory System , Thyroid System - Morphological Aspects, Physiological and Biochemical Aspects (Time of Year) / Laboratory Study

1667

Vernon, E.H. 1957.
Morphometric comparison of three races of kokanee (Oncorhynchus nerka) within a large British Columbia lake. -- J. Fish. Res. Board Can. 14(4):573-598.

Sockeye Salmon - Mature, Landlocked / Southern British Columbia / Lake / Homing, Straying / Stock Identification - Morphometrics and Meristics

1668

Vernon, E.H., A.S. Hourston, and G.A. Holland. 1964.
The migration and exploitation of pink salmon runs in and adjacent to the Fraser River Convention area in 1959. -- Int. Pac. Salmon Fish. Comm. Bull. 15:296p.

Pink Salmon - Mature / Southern British Columbia, Washington / Inshore / Route, Seasonal Timing, Speed of Migration / Tagging, Capture

1669

Vibert, R. 1953.
Migrations maritimes des saumons. -- Bull. Soc. Zool. Fr. 77(5/6):313-317.

Not seen.

Atlantic Salmon / Migration (General)

1670

Vibert, R. 1953.
Voyages maritimes des saumons et retour ã la rivière natale. -- Bull. Fr. Piscic. 170:5-23.

Not seen.

Atlantic Salmon / Homing

1671

Vibert, R. 1955.
Voyages maritimes des saumons et retour ã la rivière natale. -- Terre Vie 102:78-100.

Not seen.

Atlantic Salmon / Homing

1672

Vickers, K.U., and G.D. Ferris. 1970.
Movements of salmon around Ireland: 11. From Cranlough and Torr-Head, 1969. -- Proc. Roy. Ir. Acad. Sect. B 70:171-178.

Atlantic Salmon - Mature / Southern Europe / Inshore / Route, Speed of Migration / Tagging

1673

Volobuev, V.V., and O.A. Nikulin. 1970.
Data on the biology of Anadyr River chum salmon. -- Izv. Tikhookean. Nauchno-Issled. Inst. Rybn. Khoz. Okeanogr. 71:219-230 (Fish. Res. Board Can. Transl. Ser. 2550).

Chum Salmon - Mature / Eastern Kamchatka to Chuchuki Peninsula / River / Seasonal Timing

1674

Volovik, S.P. 1968.
Possibility of using the method of morphometry for determining local pink salmon populations. -- Izv. Tikhookean Nauchno-Issled. Inst. Rybn. Khoz. Okeanogr. 65:268-272 (Fish. Res. Board Can. Transl. Ser. 1442).

Pink Salmon / Sea of Okhotsk / Stock Identification - Morphometrics and Meristics

1675

Volovik, S.P., and O.F. Gritsenko. 1968.
Certain biological peculiarities of chum salmon in the basin of the Tym River (northeastern Sakhalin). -- Izv. Tikhookean. Nauchno-Issled. Inst. Rybn. Khoz. Okeanogr. 65:266-267 (Fish Res. Board Can. Transl. Ser. 1984).

Chum Salmon - Mature / Sea of Okhotsk / River / Seasonal Timing

1676

Wagner, H.H. 1969.
Effect of stocking location of juvenile steelhead trout, *Salmo gairdneri*, on adult catch. -- Trans. Am. Fish. Soc. 98(1):27-34.

Steelhead Trout - Smolt, Mature / Oregon / River / Homing, Straying, Imprinting and Learning / Marking

1677

Wagner, H.H. 1971.
The parr-smolt metamorphosis in steelhead trout as affected by photoperiod and temperature. -- Ph.D. thesis. -- Oregon State University, Corvallis, Oregon. -- 211p.

Steelhead Trout - Smolt / Smoltification - Photoperiod, Water Temperature

1678

Wagner, H.H. 1974.
Photoperiod and temperature regulation of smolting in steelhead trout (Salmo gairdneri). -- Can. J. Zool. 52(2):219-234.

Steelhead Trout - Smolt / Oregon / Smoltification, Initiation of Downstream Migration - Photoperiod (Water Temperature) / Laboratory Study

1679

Wagner, H.H. 1974.
Seawater adaptation independent of photoperiod in steelhead trout (Salmo gairdneri). -- Can. J. Zool. 52:805-812.

Steelhead Trout - Juvenile / Seawater Adaptation - Physiological and Biochemical Aspects (Photoperiod) / Laboratory Study

1680

Wagner, H.H., F.P. Conte, and J.L. Fessler. 1969.
Development of osmotic and ionic regulation in two races of chinook salmon, Oncorhynchus tshawytscha. -- Comp. Biochem. Physiol. 29:325-341.

Chinook Salmon - Juvenile / Osmoregulatory and Excretory System, Seawater Adaptation - Physiological and Biochemical Aspects / Initiation of Downstream Migration / Laboratory Study

1681

Wagner, H.H., R.L. Wallace, and H.J. Campbell. 1963.
The seaward migration and return of hatchery-reared steelhead trout, Salmo gairdneri Richardson, in the Alsea River, Oregon. -- Trans. Am. Fish. Soc. 92(3):202-210.

Steelhead Trout - Smolt / Oregon / River / Seasonal Timing - Size and Growth, Age / Speed of Migration - Size and Growth / Count

1682

Wales, J.H., and M. Coots. 1954.
Efficiency of chinook salmon spawning in Fall Creek, California. -- Trans. Am. Fish. Soc. 84:137-149.

Chinook Salmon - Mature, Juvenile / California / Tributary / Seasonal Timing / Count

1683

Walker, J.C. 1967.
Odor discrimination in relation to homing in Atlantic salmon, Salmo salar. -- M.Sc. thesis. -- University of New Brunswick, Fredricton, New Brunswick. -- 126p.

Atlantic Salmon - Mature / River / Direction Finding (General) - Odours

1684

Walters, V. 1955.
Fishes of western Arctic America and eastern Arctic Siberia. -- Bull. Amer. Mus. Nat. Hist. 106:255-368.

Pink Salmon, Chum Salmon - Adult / Arctic North America / Horizontal Distribution (Geographic)

1685

Ward, F.J. 1959.
Character of the migration of pink salmon to Fraser River spawning grounds in 1957. -- Int. Pac. Salmon Fish. Comm. Bull. 10:70p.

Pink Salmon - Mature / Southern British Columbia, Washington / Inshore, River / Seasonal Timing, Speed of Migration / Tagging

1686

Ward, H.B. 1908.
Some points in the migration of Pacific salmon as shown by its parasites. -- Trans. Am. Fish. Soc. 37:92-108.

Pacific Salmon (General) / Migration (General)

1687

Ward, H.B. 1909.
Notes on the leaping of the Pacific salmon. -- Trans. Am. Fish. Soc. 39:162-167.

Sockeye Salmon - Mature / River, Natural Obstruction / Behaviour

1688

Ward, H.B. 1920.
Some features in the migration of the sockeye salmon and their practical significance. -- Trans. Am. Fish. Soc. 50:387-426.

Sockeye Salmon - Mature / River / Pattern, Direction Finding (General), Termination of Migration - Water Temperature

1689

Ward, H.B. 1921.
Some of the factors controlling the migration and spawning of the Alaska red salmon. -- Ecology 2(4):235-254.

Sockeye Salmon - Mature / River / Route, Homing, Pattern / Taxis - Current / Initiation of Stream Entry - Water Temperature

1690

Ward, H.B. 1927.
The influence of a power dam in modifying conditions affecting the migration of salmon. -- Proc. Nat. Acad. Sci. U.S.A. 13(12):827-833.

Salmon (General) / Migration (General) - Obstruction, Reservoirs and Impoundments

1691

Ward, H.B. 1929.
Further studies on the influence of a power dam in modifying conditions affecting the migration of the salmon. -- Proc. Natl. Acad. Sci. U.S.A. 15(1):56-62.

Sockeye Salmon - Mature / Migration (General) - Obstruction, Reservoirs and Impoundments

1692

Ward, H.B. 1930.
Some responses of sockeye salmon to environmental influence during fresh-water migration. -- Ann. Mag. Nat. Hist. 6:18-36.

Sockeye Salmon - Mature, Landlocked / River, Artificial Obstruction, Reservoir or Impoundment / Pattern, Behaviour - Current / Initiation of Stream Entry - Water Temperature / Diel Timing / Migration (General)

1693

Ward, H.B. 1932.
The origin of the landlocked habit in salmon. -- Proc. Nat. Acad. Sci. U.S.A. 18:569-580.

Salmon (General) / Migration (General)

1694

Ward, H.B. 1938.
Environmental stimuli and salmon migration. Pp.667-679 in Commemorative volume "Grigore Antipa". -- Imprimeria Nationala, Bucuresti, Roumania.

Sockeye Salmon - Mature / Migration (General)

1695

Ward, H.B. 1939.
Factors controlling salmon migration. Pp.60-71 in F.R. Moulton (ed.). The migration and conservation of salmon. -- Publ. Amer. Assoc. Adv. Sci. 8.

Salmon (General) / Homing / Stock Identification - Scale Analysis / Marking

1696

Ward, H.B. 1939.
Salmon psychology. -- J. Wash. Acad. Sci. 29(1):14p.

Pacific Salmon (General) / Migration (General)

1697

Warner, G.H., D.H. Fry, and A.N. Culver. 1961.
History of the yearling king salmon marked and released at Nimbus Hatchery. -- Calif. Fish Game 47(4):343-355.

Chinook Salmon - Mature / California / River / Seasonal Timing - Genetic Aspects

1698

Warner, K. 1959.
Migration of landlocked salmon in the Fish River Lakes, Maine. -- J. Wildl. Manage. 23(1):17-27.

Atlantic Salmon - Landlocked, Mature, Kelt / Atlantic Canada and United States / Lake, River / Route, Homing / Tagging

1699

Warner, K. 1962.
The landlocked salmon spawning run at Cross Lake Thoroughfare, Maine. -- Copeia 1962:131-138.

Atlantic Salmon - Mature, Landlocked / Atlantic Canada and United States / Tributary / Seasonal Timing, Diel Timing

1700

Washington, P.M. 1982.
The influence of the size of juvenile coho salmon (Oncorhynchus kisutch) on seaward migration and survival. Pp.146-152 in E.L. Brannon and E.O. Salo (ed.). Proceedings of the Salmon and Trout Migratory Behavior Symposium. -- School of Fisheries, University of Washington, Seattle, Washington.

Coho Salmon - Juvenile / Washington / River / Direction - Size and Growth

1701

Watts, E.G. 1973.
Calcium and calcitonin studies in Pacific salmon, genus Oncorhynchus, and rainbow trout, Salmo gairdneri. -- Ph.D. thesis. -- University of British Columbia, Vancouver, British Columbia.

Pacific Salmon (General) - Mature / River / Freshwater Adaptation / Interrenal System - Physiological and Biochemical Aspects

1702

Watts, E.G., D.H. Copp, and L.J. Deftos. 1975.
Changes in plasma calcitonin and calcium during migration of salmon. -- Endocrinology 96(1):214-218.

Sockeye Salmon - Mature / Inshore, River, Tributary / Freshwater Adaptation / Osmoregulatory and Excretory System, Interrenal System - Physiological and Biochemical Aspects (Stage of Migration) / Laboratory Study

1703

Weaver, C.R. 1963.
Influence of water velocity upon orientation and performance of adult migrating salmonids. -- Fish. Bull. 63(1):97-121.

Steelhead Trout, Chinook Salmon, Coho Salmon - Mature / River / Speed of Migration, Preference - Current / Behaviour / Laboratory Study

1704

Weber, D.D., D.J. Maynard, W.D. Gronlund, and V. Konchin. 1981.

Avoidance reactions of migrating adult salmon to petroleum hydrocarbons. -- Can. J. Fish. Aquat. Sci. 38(7):779-781.

Pacific Salmon (General) - Mature / River / Pattern - Pollutants

1705

Weber, L.J., and J.R. Smith. 1980.
Possible role of the pineal gland in migratory behavior of salmonids. Pp.313-320 in W.J. McNeil and D.C. Himsworth (ed.). Salmonid ecosystems of the North Pacific. -- Oregon State University Press, Corvallis,Oregon.

Salmon (General) / Migration (General) - Pineal System

1706

Wedemeyer, G., R.L. Saunders, and W.C. Clarke. 1980.
Environmental factors affecting smoltification and early marine survival of anadromous salmonids. -- Mar. Fish Rev. 42(6):1-14.

Salmon (General) - Smolt / Smoltification - Morphological Aspects, Endocrine System (General), Size and Growth, Physiological and Biochemical Aspects, Pollutants, Water Temperature, Photoperiod / Seawater Adaptation, Osmoregulatory and Excretory System - Physiological and Biochemical Aspects / Behaviour

1707

Weisbart, M. 1967.
Osmotic and ionic regulation in embryos, alevins and fry of the five species of Pacific salmon. -- Ph.D. thesis. -- University of British Columbia, Vancouver, British Columbia.

Pink Salmon, Coho Salmon, Chinook Salmon, Sockeye Salmon, Chum Salmon - Alevin, Fry / Osmoregulatory and Excretory System - Physiological and Biochemical Aspects

1708

Weisbart, M. 1968.
Osmotic and ionic regulation in embryos, alevins, and fry of the five species of Pacific salmon. -- Can. J. Zool. 46:385-397.

Coho Salmon, Chinook Salmon, Chum Salmon, Pink Salmon, Sockeye Salmon - Alevin, Fry / Osmoregulatory and Excretory System - Physiological and Biochemical Aspects / Laboratory Study

1709

Wells, J.W., and W.H. Parr. 1971.
Studies of adult sockeye salmon (Oncorhynchus nerka) at Chignik Alaska, in 1969 and 1970. -- Univ. Wash. Fish. Res. Inst. Circ. 71-7: 66p.

Sockeye Salmon - Mature / Western Alaska / Estuary / Seasonal Timing

1710

Wendler, H.O. 1959.
Migration and fishing rates of Columbia River spring chinook salmon in 1955. -- Wash. Dep. Fish. Fish. Res. Pap. 2(2):71-80.

Chinook Salmon - Mature / Washington / River / Seasonal Timing / Pattern, Speed of Migration / Tagging

1711

Went, A.E.J. 1938.
Salmon of the River Shannon. -- Proc. Roy. Ir. Acad. 44B:261-322.

Atlantic Salmon - Smolt / Southern Europe / Smoltification - Size and Growth

1712

Went, A.E.J. 1947.
Salmon marking in Ireland. -- Proc. Roy. Ir. Acad. 51B:173-195.

Atlantic Salmon - Kelt, Mature / Southern Europe / Inshore, River / Route, Homing, Straying / Tagging

1713

Went, A.E.J. 1951.
Movements of salmon along the coasts of northern Ireland. -- Nature 167:981-982.

Atlantic Salmon - Mature / Southern Europe / Inshore / Speed of Migration, Route / Tagging

1714

Went, A.E.J. 1951.
Movements of salmon around Ireland. 1. From Achill, Co. Mayo (1948-1950). -- Proc. Roy. Ir. Acad. 54B:169-201.

Atlantic Salmon - Mature / Southern Europe / Inshore / Route, Speed of Migration / Tagging

1715

Went, A.E.J. 1953.
Movements of salmon around Ireland. 3. From Carnlough, Co. Antrim, 1950 and 1951. -- Proc. Roy. Ir. Acad. 55B:209-223.

Atlantic Salmon - Mature / Southern Europe / Inshore / Route, Speed of Migration / Tagging

1716

Went, A.E.J. 1956.
Salmon movements around Ireland. 6. From Portallintrae, Co. Antrim (1953 and 1954). -- Proc. Roy. Ir. Acad. 58B(2):17-21.

Atlantic Salmon - Mature / Southern Europe / Inshore / Route, Speed of Migration / Tagging

1717

Went, A.E.J. 1958.
Salmon movements around Ireland. 8. From drift nets along the coast of County Donegal (1953-1957). -- Proc. Roy. Ir. Acad. 59B:205-212.

Atlantic Salmon - Adult / Southern Europe / Inshore / Route, Speed of Migration / Tagging

1718

Went, A.E.J. 1959.
Investigations into the movements of salmon around Ireland. -- Rep. Sea Inland Fish. Irel. 1957:66-80.

Atlantic Salmon - Mature, Adult / Southern Europe / Inshore / Route, Speed of Migration / Tagging

1719

Went, A.E.J. 1967.
Recaptures of Irish tagged salmon off Greenland. -- Ir. Fish. Invest. Ser. A 1:56-57.

Atlantic Salmon - Adult / Atlantic Ocean (General) / Open Ocean / Route / Tagging

1720

Went, A.E.J. 1970.
Salmon movements around Ireland. -- Ber. Dtsch. Wiss. Komm. Meeresforsch. 21:33-45.

Atlantic Salmon - Adult / Southern Europe / Inshore / Route, Speed of Migration / Tagging

1721

Went, A.E.J. 1973.
Movements of salmon *Salmo salar* (L.) to and from Irish waters. -- J. Fish Biol. 5(6):659-671.

Atlantic Salmon - Kelt, Immature, Mature / Southern Europe, Iceland and Northern Europe, Greenland, Atlantic Canada and United States, Eastern North Atlantic, Western North Atlantic / Inshore, Open Ocean / Route

1722

Went, A.E.J. 1976.
The recapture of British salmon in Irish waters. -- J. Fish Biol. 8:311-316.

Atlantic Salmon - Mature / Southern Europe / Inshore / Route / Tagging

1723

Went, A.E.J., and F.A. Gibson. 1953.
Salmon movements around Ireland. 4. From Streedagh, Co. Sligo (1951 and 1952). -- Proc. Roy. Ir. Acad. 56B:1-12.

Atlantic Salmon - Mature / Southern Europe / Inshore / Route / Tagging

1724

Went, A.E.J., and K.U. Vickers. 1953.
Salmon movements around Ireland. 5. From north County Antrim (1951 and 1952). -- Proc. Roy. Ir. Acad. 56B:13-28.

Atlantic Salmon - Mature / Southern Europe / Inshore / Route, Speed of Migration / Tagging

1725

West, C.J. 1978.
A review of the Babine Lake development project 1961-1977. -- Fish. Mar. Serv. (Can.) Tech. Rep. 812:105p.

Sockeye Salmon - Fry / Northern British Columbia / Tributary / Seasonal Timing, Initiation of Downstream Migration - Water Temperature, Water Level and Flow Rate / Seasonal Timing / Count

1726

Wheeler, A., and R.W. Blacker. 1969.
Rare and little-known fishes in British seas in 1966 and 1967. -- J. Fish Biol. 1:311-331.

Pink Salmon - Adult / Southern Europe / Horizontal Distribution (Geographic)

1727

White, H.C. 1934.
Some facts and theories concerning the Atlantic salmon. -- Trans. Am. Fish. Soc. 64:360-362.

Atlantic Salmon - Mature / River / Direction Finding (General) - Influences (Miscellaneous) / Homing

1728

White, H.C. 1936.
The homing of salmon in Apple River, N.S. -- J. Biol. Board Can. 2(4):391-400.

Atlantic Salmon - Mature / Atlantic Canada and United States / River, Estuary / Pattern - Tide / Homing, Straying / Tagging

1729

White, H.C. 1939.
Factors influencing descent of Atlantic salmon smolts. -- J. Fish. Res. Board Can. 4(5):323-326.

Atlantic Salmon - Smolt / Atlantic Canada and United States / River / Initiation of Downstream Migration - Water Level and Flow Rate, Weather, Water Temperature, Light Intensity / Count

1730

White, H.C. 1940.
The Moser River salmon run, 1940. (Atlantic salmon and trout investigations, 1940. Vol.20). -- Fish. Res. Board Can. Manuscr. Rep. Biol. Stn. 210(13):13p.
Atlantic Salmon - Mature / Atlantic Canada and United States / River, Tributary / Initiation of Downstream Migration, Seasonal Timing - Water Level and Flow Rate,

Water Temperature / Diel Timing, Homing, Reverse Migration / Count, Tagging, Marking

1731

White, H.C. 1941.
Moser River smolt run in 1941. (Atlantic salmon and trout investigations, 1941. Vol.23). -- Fish. Res. Board Can. Manuscr. Rep. Biol. Stn. 213(15):3p.

Atlantic Salmon - Smolt / Atlantic Canada and United States / River / Seasonal Timing, Initiation of Downstream Migration - Water Temperature, Water Level and Flow Rate / Count

1732

White, H.C. 1942.
Looseness of scales and colour changes in salmon. (Atlantic salmon and trout investigations, 1942. Vol.27). -- Fish. Res. Board Can. Manuscr. Rep. Biol. Stn. 329(23):3p.

Atlantic Salmon - Mature, Kelt / Atlantic Canada and United States / River / Skeletal and Integumentary System - Morphological Aspects (Stage of Migration) / Freshwater Adaptation

1733

White, H.C., and A.G. Huntsman. 1938.
Is local behaviour in salmon heritable? -- J. Fish. Res. Board Can. 4(1):1-18.

Atlantic Salmon - Smolt, Mature / Atlantic Canada and United States / Estuary, River / Seasonal Timing - Genetic Aspects / Straying / Behaviour, Pattern / Initiation of Downstream Migration - Water Level and Flow Rate

1734

Whitman, R.P., T.P. Quinn, and E.L. Brannon. 1982.
Influence of suspended volcanic ash on homing behavior of adult chinook salmon. -- Trans. Am. Fish. Soc. 111(1):63-69.

Chinook Salmon - Mature / River / Direction Finding (General) - Odours (Pollutants) / Homing, Straying - Pollutants

1735

Whitmore, C.M., C.E. Warren, and P. Doudoroff. 1960.
Avoidance reactions of salmonid and centrarchid fishes

to low oxygen concentrations. -- Trans. Am. Fish Soc. 89(1):17-26.

Coho Salmon, Chinook Salmon - Juvenile / Preference - Dissolved Gas Concentration / Laboratory Study

1736

Whoriskey, F.G., R.J. Naiman, and P.H. Heinerman. 1981.
Steelhead trout (*Salmo gairdneri*) on the north shore of the Gulf of St. Lawrence, near Sept-Iles, Quebec. -- Can. J. Fish. Aquat. Sci. 38(2):245-246.

Steelhead Trout - Mature / Atlantic Canada and United States / Horizontal Distribution (Geographic)

1737

Wickett, W.P. 1964.
An unusually late-spawning British Columbia chum salmon. -- J. Fish. Res. Board Can. 21(3):657.

Chum Salmon - Mature / Southern British Columbia / River / Seasonal Timing

1738

Wild, P.W. 1967.
An occurence of a chum salmon, *Oncorhynchus keta* (Walbaum), in the California troll fishery. -- Calif. Fish Game 53(4):299-300.

Chum Salmon - Adult / California / Inshore / Horizontal Distribution (Geographic)

1739

Wilder, D.G. 1942.
Operation of Petitcodiac and Pollett smolt traps in 1942. (Atlantic salmon and trout investigations, 1941. Vol.25). -- Fish. Res. Board Can. Manuscr. Rep. Biol. Stn. 327(3):9p.

Atlantic Salmon - Fingerling, Smolt / Atlantic Canada and United States / River / Initiation of Downstream Migration, Seasonal Timing - Water Temperature, Water Level and Flow Rate / Count

1740

Wilkins, N.P. 1971.
Biochemical and serological studies on Atlantic salmon *Salmo salar* L. -- Rapp. P.-V. Reun. Cons. Int. Explor. Mer 161:91-95.

Atlantic Salmon / Atlantic Ocean (General) / Stock Identification - Electrophoresis and Serology

1741

Wilkins, N.P. 1972.
Biochemical genetics of the Atlantic salmon *Salmo salar* L. 1. A review of recent studies. -- J. Fish Biol. 4:487-504.

Atlantic Salmon / Atlantic Ocean (General) / Stock Identification - Electrophoresis and Serology

1742

Wilkins, N.P. 1972.
Biochemical genetics of the Atlantic salmon *Salmo salar* L. 2. The significance of recent studies and their application in population identification. -- J. Fish Biol. 4:505-517.

Atlantic Salmon / Atlantic Ocean (General) / Stock Identification - Electrophoresis and Serology

1743

Williamson, H.C. 1927.
Pacific salmon migration: report on the tagging operations in 1925. -- Contr. Can. Biol. Fish. 3(9):265-306.

Sockeye Salmon, Chinook Salmon - Mature / Southern British Columbia, Northern British Columbia, Washington, Oregon / Inshore / Route / Speed of Migration / Tagging

1744

Williamson, H.C. 1929.
Pacific salmon migration: report on the tagging operations in 1926, with additional returns from the operations of 1925. -- Contr. Can. Biol. Fish. 4(29):455-470.

Coho Salmon, Chinook Salmon - Mature / Southern British Columbia, Washington / Inshore / Route, Speed of Migration / Tagging

1745

Williamson, H.C., and W.A. Clemens. 1932.
Pacific salmon migration: the tagging operations at Quatsino and Kyuquot in 1927, with additional returns from the operations of 1925 and 1926. -- Bull. Biol. Board Can. 26:16p.

Coho Salmon, Chinook Salmon - Mature / Southern British Columbia, Washington / Inshore / Route, Speed of Migration / Tagging

1746

Williamson, R.B. 1974.
Further captures of Pacific salmon in Scottish waters. -- Scott. Fish. Bull. 41:28-30.

Pink Salmon - Mature / Western Arctic Russia, Southern Europe / Route

1747

Willis, R. 1952.
Recovery of a chinook salmon in Tillamook Bay tagged in Alaska. -- Fish Comm. (Oreg.) Res. Briefs 4(1):30.

Chinook Salmon - Adult / Southeastern Alaska, Oregon / Inshore / Route / Tagging

1748

Winter, J.D. 1976.
Movements and behavior of largemouth bass (Micropterus salmonides) and steelhead (Salmo gairdneri) determined by radio telemetry. -- Ph.D. thesis. -- University of Minnesota, Minneapolis, Minnesota. -- 200p.

Steelhead Trout - Mature / Great Lakes / River / Pattern, Speed of Migration, Homing / Initiation of Stream Entry - Water Level and Flow Rate / Sonic or Radio Tracking, Displacement

1749

Wisby, W.J., and A.D. Hasler. 1954.
Effect of olfactory occlusion on migrating silver salmon (O. kisutch). -- J. Fish. Res. Board Can. 11(4):472-478.

Coho Salmon - Mature / Washington / Tributary / Direction Finding (General) - Odours / Homing / Occlusion, Displacement, Tagging

1750

Withler, F.C. 1982.
Transplanting Pacific salmon. -- Can. Tech. Rep. Fish. Aqaut. Sci. 1079:27p.

Pacific Salmon (General) / Migration (General)

1751

Withler, I.L. 1966.
Variability in life history characteristics of steelhead trout (Salmo gairdneri) along the Pacific coast of North America. -- J. Fish. Res. Board Can. 23(3):365-393.

Steelhead Trout - Mature / Southern British Columbia / River, Tributary / Seasonal Timing / Initiation of Stream Entry - Water Level and Flow Rate

1752

Woo, N.Y.S., H.A. Bern, and R.S. Nishioka. 1978.
Changes in body composition associated with smoltification and premature transfer to seawater in coho salmon (Oncorhynchus kisutch) and king salmon (O. tshawytscha). -- J. Fish Biol. 13(4):421-428.

Coho Salmon, Chinook Salmon - Smolt / Smoltification, Osmoregulatory and Excretory System - Physiological and Biochemical Aspects / Energetics

1753

Wood, J.D. 1958.
Biochemical studies on sockeye salmon during spawning migration: IV. The non-protein nitrogenous constituents of the muscle. -- Can. J. Biochem. Physiol. 36(8):833-838.

Sockeye Salmon - Mature / Inshore, River, Tributary / Freshwater Adaptation / Organ Systems (General) - Physiological and Biochemical Aspects (Stage of Migration) / Laboratory Study

1754

Wood, J.D., D.W. Duncan, and M. Jackson. 1960.
Biochemical studies on sockeye salmon during spawning migration: XI. The free histidine content of the tissues. -- J. Fish. Res. Board Can. 17(3):347-351.

Sockeye Salmon - Mature / Inshore, River, Tributary / Organ Systems (General) - Physiological and Biochemical Aspects (Stage of Migration) / Freshwater Adaptation / Laboratory Study

1755

Woodhead, A.D. 1975.
Endocrine physiology of fish migration. -- Oceanogr. Mar. Biol. 13:287-382.

Salmon (General) / Migration (General), Seawater Adaptation, Olfactory System, Behaviour, Energetics, Osmoregulatory and Excretory System, Locomotory System, Endocrine System (General) / Direction Finding (General) - Odours, Influences (Miscellaneous) / Migration (General) - Thyroid System, Interrenal System, Gonadal System

1756

Woodhead, P.M.J. 1957.
Reactions of salmonid larvae to light. -- J. Exp. Biol. 34:402-416.

Steelhead Trout, Atlantic Salmon - Alevin / Taxis, Behaviour - Light Intensity / Laboratory Study

1757

Worlund, D.D., and R.A. Fredin. 1962.
Differentiation of stocks. Pp.143-153 in N.J. Wilimovsky (ed.). Symposium on pink salmon. H.R. MacMillan Lectures in Fisheries, 1960. -- Institute of Fisheries, University of British Columbia, Vancouver, British Columbia.

Pink Salmon / Stock Identification

1758

Wright, A.T. 1965.
The use of scale circuli spacings as a means of separating races of Prince William Sound pink salmon. -- Alaska Dep. Fish Game Inf. Leafl. 66:27p.

Pink Salmon / Central Alaska / Stock Identification - Scale Analysis

1759

Wright, S., and R. Brix. 1972.
Geographical origin, trends and timing of Washington's troll salmon (Oncorhynchus) catches, 1960-1969. -- Pac. Mar. Fish. Comm. Bull. 8:31-36.

Coho Salmon, Chinook Salmon - Adult / Washington / Inshore / Seasonal Timing / Capture

1760

Wright, S.G. 1968.
The origin and migration of Washington's chinook and coho salmon. -- Wash. Dep. Fish. Res. Div. Inf. Booklet. 1:25p.

Chinook Salmon, Coho Salmon - Immature, Mature / California, Oregon, Washington, Southern British Columbia, Northern British Columbia / Inshore / Route

1761

Yamane, S., and J. Yamada. 1977.
Histological changes of the ultimobranchial gland through the life history of the masu salmon. -- Bull. Jap. Soc. Sci. Fish. 43(4):375-386.

Masu Salmon - Fingerling, Smolt, Immature, Mature / Ultimobranchial System - Morphological Aspects (Stage of Migration) / Laboratory Study

1762

Yamazaki, F., T. Awakura, M. Atoda, and S. Tanada. 1973.
On the inhibition of silvering and protective effect induced by methyltestosterone in the skin of masu salmon (Oncorhynchus masou). -- Sci. Rep. Hokkaido Fish Hatchery 28:1-10.

In Japanese; English abstract.

Masu Salmon / Smoltification - Physiological and Biochemical Aspects, Morphological Aspects

1763

Yegorova, T.V. 1977.
Spawning runs and spawning times of the sockeye salmon, Oncorhynchus nerka, in the Ozernaya River Basin. -- J. Icthyol. 17(4):559-566.

Sockeye Salmon - Mature / Sea of Okhotsk / River / Seasonal Timing - Population Density / Initiation of Upstream Migration - Water Level and Flow Rate, Water Temperature / Diel Timing / Count

1764

Yevropeitseva, N.V. 1957.
Transformation of the young salmon to the migratory condition and their downstream migration. -- Uch. Zap. Leningr. Gos. Univ. Ser. Biol. Nauk. 228 (44):117-154 (Fish. Res. Board Can. Transl. Ser. 234).

Atlantic Salmon - Fingerling, Smolt / Iceland and Northern Europe / Tributary / Smoltification - Water Temperature, Size and Growth, Morphological Aspects / Thyroid System / Initiation of Downstream Migration - Water Level and Flow Rate, Water Temperature

1765

Yevropeitseva, N.V. 1960.
Correlation between the processes of early gonad ripening, and transformation to the seaward-migrating stage, among Baltic salmon (*Salmo salar* L.) held in ponds. -- Zool. Zh. 39(5):777-779 (Fish. Res. Board Can. Transl. Ser. 430).

Atlantic Salmon - Fingerling, Smolt / Iceland and Northern Europe / Smoltification

1766

Yevropeitseva, N.V. 1962.
Comparative analysis of the desmoltification process among the different ecological forms of Atlantic salmon. -- Uch. Zap. Leningr. Gos. Univ. Ser. Biol. Nauk. 311 (48):46-73 (Fish. Res. Board Can. Transl. Ser. 431).

Atlantic Salmon - Fingerling, Smolt / Iceland and Northern Europe / Smoltification - Size and Growth / Desmoltification, Seawater Adaptation

1767

Yoneda, T., and Y. Ishihara. 1975.
On serum free amino acids of chum salmon, *Oncorhynchus keta*, changes of amino acid contents of the salmon sera before and after fresh water migration for spawning. -- Bull. Fac. Fish. Hokkaido Univ. 26(2):192-200.

In Japanese; English abstract.

Chum Salmon - Mature / Japan / River, Inshore / Circulatory System - Physiological and Biochemical Aspects (Stage of Migration) / Laboratory Study

1768

Yonemori, T. 1967.
On the distrbution of Pacific salmon (genus *Oncorhynchus*) in the waters adjacent to St. Lawrence Island and Anadyr Bay. -- Bull. Hokkaido Reg. Fish. Res. Lab. 33:109-124.

In Japanese; English abstract.

Sockeye Salmon, Chum Salmon, Pink Salmon - Immature, Mature / Bering Sea / Open Ocean / Horizontal Distribution (Geographic), Route / Capture, Tagging

1769

Yonemori, T. 1971.
Relation between the direction of gilling (direction of swimming of fish when caught by gillnets) and long-term migratory direction obtained by tagging experiments on salmon distributed in the central Bering Sea. -- Bull. Far Seas Fish. Res. Lab. 4:51-69.

In Japanese; English abstract.

Chinook Salmon, Sockeye Salmon, Chum Salmon, Pink Salmon - Immature, Adult / Bering Sea / Open Ocean / Direction, Seasonal Timing / Speed of Migration / Capture / Tagging

1770

Yonemori, T. 1975.
A trial analysis of the results obtained from tagging on chum salmon originating from Hokkaido. -- Int. North Pac. Fish. Comm. Bull. 32:130-159.

Chum Salmon - Immature, Mature / Japan, Sea of Okhotsk, Western Pacific Ocean, Central Pacific Ocean, Eastern Pacific Ocean, Bering Sea / Open Ocean / Route - Current / Seasonal Timing / Tagging / Stock Identification - Scale Analysis

1771

Yonemori, T., H. Asai, and T. Ichihara. 1975.
Distribution and migration of salmon (especially chum salmon) in the Oyashio Current waters south off southern Kuril Islands in autumn. -- Bull. Far Seas Fish. Res. Lab. 13:39-61.

In Japanese; English abstract.

Chum Salmon - Immature, Adult / Japan / Inshore, Open Ocean / Horizontal Distribution (Geographic) - Water Temperature, Time of Year / Route / Tagging, Capture

1772

Yoshimitsu, T. 1965.
Consideration on the formation and transition of the fishing ground for salmon, based on the data obtained from the motherships' operations. Red salmon. -- Bull. Jap. Soc. Sci. Fish. 31(4):263-268.

In Japanese; English abstract.

Sockeye Salmon, Chum Salmon - Adult / Bering Sea, Western Pacific Ocean / Open Ocean / Seasonal Timing / Capture

1773

Zaks, M.G., and M.M. Sokolova. 1961.
On the mechanism of adaptation to changes in water salinity by sockeye salmon. -- Vopr. Ikhtiol. 1(2):333-346 (Fish. Res. Board Can. Transl. Ser. 372).

Sockeye Salmon - Smolt, Mature / Osmoregulatory and Excretory System - Physiological and Biochemical Aspects / Seawater Adaptation, Freshwater Adaptation

1774

Zaks, M.G., and M.M. Sokolova. 1965.
Changes in the type of osmoregulation at different periods of the migration cycle in sockeye salmon, Oncorhynchus nerka (Walb.). -- Vopr. Ikhtiol. 5(2):331-337 (Fish. Res. Board Can. Transl. Ser. 773).

Sockeye Salmon - Smolt, Mature / Eastern Kamchatka to Chuchuki Peninsula / River / Osmoregulatory and Excretory System - Physiological and Biochemical Aspects

1775

Zama, K., and H. Igarashi. 1954.
Biochemical studies of the salmon, Oncorhynchus keta: III. The changes in the components of liver fats during the spawning migration. -- Bull. Jap. Soc. Sci. Fish. 19(11):1092-1095.

In Japanese; English abstract.

Chum Salmon - Mature / Japan / Estuary, River / Digestive System - Physiological and Biochemical Aspects (Stage of Migration) / Freshwater Adaptation / Laboratory Study

1776

Zarnecki, S. 1963.
Differentiation of Atlantic salmon (Salmo salar, L.) and of sea trout (Salmo trutta L.) from the Wisla (Vistula) river into seasonal populations. -- Acta Hydrobiol. (Krakow) 5:255-294.

In Polish; English abstract.

Atlantic Salmon - Mature / Iceland and Northern Europe / River / Seasonal Timing

1777

Zarnecki, S. 1964.
Times of entering into the Wisla (Vistula) of summer and winter populations of sea trout and Atlantic salmon in the 1952 year cycle. -- Acta Hydrobiol. (Krakow) 6:259-267.

In Polish; English abstract.

Atlantic Salmon - Mature / Iceland and Northern Europe / River / Seasonal Timing

1778

Zaugg, W.S. 1970.
Comments on the relationship between gill ATPase activities, migration, and salt water adaptation of coho salmon. -- Trans. Am. Fish. Soc. 99(4):811-813.

Coho Salmon - Juvenile / Preference - Salinity / Seawater Adaptation - Physiological and Biochemical Aspects

1779

Zaugg, W.S. 1981.
Advanced photoperiod and water temperature effects on gill Na+-K+ adenosine triphosphatase activity and migration of juvenile steelhead (Salmo gairdneri). -- Can. J. Fish. Aquat. Sci. 38(7):758-764.

Steelhead Trout - Juvenile / Osmoregulatory and Excretory System, Smoltification - Photoperiod, Water Temperature, Size and Growth / Initiation of Downstream Migration - Photoperiod, Water Temperature / Laboratory Study

1780

Zaugg, W.S. 1982.
Relationships between smolt indices and migration in controlled and natural environments. Pp.173-183 in E.L. Brannon and E.O. Salo (ed.). Proceedings of the Salmon and Trout Migratory Behavior Symposium. -- School of Fisheries, University of Washington, Seattle, Washington.

Steelhead Trout, Chinook Salmon, Coho Salmon - Juvenile / Coho Salmon - Smolt / Washington / River / Smoltification, Osmoregulatory and Excretory System - Physiological and Biochemical Aspects / Desmoltification

1781

Zaugg, W.S. 1982.
Some changes in smoltification and seawater adaptability of salmonids resulting from environmental and other factors. -- Aquaculture 28(1/2):143-151.

Chinook Salmon, Coho Salmon - Smolt / Seawater Adaptation, Smoltification - Physiological and Biochemical Aspects

1782

Zaugg, W.S., B.L. Adams, and L.R. McLain. 1972.
Steelhead migration: potential temperature effects as indicated by gill adenosine triphosphatase activities. -- Science 176(4033):415-416.

Steelhead Trout - Juvenile / River / Osmoregulatory and Excretory System / Smoltification - Physiological and Biochemical Aspects (Water Temperature)

1783

Zaugg, W.S., and L.R. McLain. 1969.
Inorganic salt effects on growth, salt water adaptation, and gill ATPase of Pacific salmon. Pp.293-306 in O.W. Neuhaus and J.E. Halver (ed.). Fish in research. -- Academic Press, New York, New York.

Coho Salmon - Juvenile / Seawater Adaptation, Osmoregulatory and Excretory System - Physiological and Biochemical Aspects / Laboratory Study

1784

Zaugg, W.S., and L.R. McLain. 1970.
Adenosinetriphosphatase activity in gills of salmonids: seasonal variations and salt water influence in coho salmon (*Oncorhynchus kisutch*). -- Comp. Biochem. Physiol. 35(3):587-596.

Coho Salmon - Juvenile / Osmoregulatory and Excretory System - Physiological and Biochemical Aspects (Time of Year) / Seawater Adaptation - Physiological and Biochemical Aspects / Laboratory Study

1785

Zaugg, W.S., and L.R. McLain. 1972.
Changes in gill adenosinetriphosphatase activity associated with parr-smolt transformation in steelhead trout, coho, and spring chinook salmon. -- J. Fish. Res. Board Can. 29(2):167-171.

Steelhead Trout, Coho Salmon, Chinook Salmon - Fingerling, Smolt / Washington / Osmoregulatory and Excretory System - Physiological and Biochemical Aspects (Time of Year, Size and Growth) / Smoltification, Seawater Adaptation / Laboratory Study

1786

Zaugg, W.S., and L.R. McLain. 1976.
Influence of water temperature on gill sodium, potasium-stimulated ATPase activity in juvenile coho salmon (Oncorhynchus kisutch). -- Comp. Biochem. Physiol. 54A:419-421.

Coho Salmon - Fingerling, Smolt / Osmoregulatory and Excretory System, Smoltification - Physiological and Biochemical Aspects (Water Temperature) / Laboratory Study

1787

Zaugg, W.S., and H.H. Wagner. 1973.
Gill ATPase activity related to parr-smolt transformation and migration in steelhead trout (Salmo gairdneri): influence of photoperiod and temperature. -- Comp. Biochem. Physiol. 45B:955-965.

Steelhead Trout - Fingerling, Smolt / Osmoregulatory and Excretory System, Smoltification - Physiological and Biochemical Aspects (Photoperiod, Water Temperature) / Initiation of Downstream Migration - Photoperiod / Laboratory Study

1788

Zawa, K., and H. Igarashi. 1954.
Biochemical studies of the salmon, Oncorhynchus keta: II. The changes in the components of depot fats during the spawning migration. -- Bull. Jap. Soc. Sci. Fish. 19(11):1087-1091.

In Japanese; English abstract.

Chum Salmon - Mature / Japan / Estuary, River / Digestive System - Physiological and Biochemical Aspects (Stage of Migration) / Freshwater Adaptation / Laboratory Study

1789

Zimmer, P.D., and J.H. Broughton. 1962.
Annual fish passage report - Rock Island Dam, Columbia River, Washington, 1961. -- U.S. Fish Wildl. Serv. Spec. Sci. Rep. Fish. 421:24p.

Chinook Salmon, Steelhead Trout, Sockeye Salmon, Coho Salmon - Mature / Washington / River, Artificial Obstruction / Seasonal Timing / Count

1790

Zimmer, P.D., and J.H. Broughton. 1964.
Annual fish passage report - Rock Island Dam, Columbia River, Washington, 1962. -- U.S. Fish Wildl. Serv. Spec. Sci. Rep. Fish. 467:26p.

Steelhead Trout, Sockeye Salmon, Coho Salmon, Chinook Salmon - Mature / Washington / River, Artificial Obstruction / Seasonal Timing / Count

1791

Zimmer, P.D., and J.H. Broughton. 1965.
Annual fish passage report - Rock Island Dam, Columbia River, Washinton, 1963. -- U.S. Fish Wildl. Serv. Spec. Sci. Rep. Fish. 500:23p.

Chinook Salmon, Sockeye Salmon, Steelhead Trout - Mature / Washington / River, Artificial Obstruction / Seasonal Timing / Count

1792

Zimmer, P.D., and J.H. Broughton. 1965.
Annual fish passage report - Rock Island Dam, Columbia River, Washington, 1964. -- U.S. Fish Wildl. Serv. Spec. Sci. Rep. Fish. 515:23p.

Steelhead Trout, Chinook Salmon, Sockeye Salmon - Mature / Washington / Artificial Obstruction, River / Seasonal Timing / Count

1793

Zimmer, P.D., and J.H. Broughton. 1966.
Annual fish passage report - Rock Island Dam, Columbia River, Washington, 1965. -- U.S. Fish Wildl. Serv. Spec. Sci. Rep. Fish. 533:24p.

Chinook Salmon, Sockeye Salmon, Steelhead Trout - Mature / Washington / Artificial Obstruction, River / Seasonal Timing / Count

1794

Zimmer, P.D., and C.C. Davidson. 1962.
Annual fish passage report - Rock Island Dam, Columbia River, Washington, 1960. -- U.S. Fish Wildl. Serv. Spec. Sci. Rep. Fish. 419:21p.

Steelhead Trout, Sockeye Salmon, Coho Salmon, Chinook Salmon - Mature / Washington / River, Artificial Obstruction / Seasonal Timing / Count

1795

Zobidi, Zh.Kh. 1978.
Scale structure as a means of definition of coho (Oncorhynchus kisutch Walb.) local stocks in the open sea. -- Izv. Tikhookean. Nauchno-Issled. Inst. Rybn. Khoz. Okeanogr. 102:76-83.

In Russian; English abstract.

Coho Salmon / Stock Identification - Scale Analysis

1796

Zueva, K.D. 1965.
The existence of the process of smoltification in humpback salmon (Oncorhynchus gorbuscha Walbaum) in the absence of the parr stage. -- Vopr. Ikhtiol. 5(2):324-330 (Fish. Res. Board Can. Transl. Ser. 629).

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